

Directorate-General for Research

WORKING PAPER

**THE MONETARY POLICY
OF THE ECB
UNDER TREATY ARTICLE 105**

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Summary and conclusions

The ECB has done a very good job in preparing the launch of the euro and in mastering the very difficult first few months of the common European monetary policy. As the introductory phase is almost over now, the time has come for a more comprehensive analysis of the strategic issues of the ECB's monetary policy. With its "stability oriented monetary policy strategy" the ECB has made a strong effort to develop a strategy which is at the same time transparent and takes into account the very special challenges of the introduction period. However, the analysis of this paper shows that in several respects major improvements or clarifications are needed.

In the area of the final target, the ECB's outright dismissal of any responsibility for short-term macroeconomic stabilisation has to be discussed in more detail. Above all, the successful performance of the Fed and the Bundesbank shows that in spite of the standard textbook wisdom, a certain stabilisation of demand shocks is possible. A greater awareness of demand shocks would also contribute to a better understanding of the relationship between price stability and employment. The broader public would realise that there are many occasions where price stability also means stable output and stable employment. An adequate response to such shocks would also require a more transparent definition of the ECB's inflation target, preferably in the form of a band with a precise upper and lower bound. Without a comprehensive analysis of these issues there is a risk that the ECB's medium-term approach will cause undue fluctuations in output and employment as it is very difficult to define a neutral stance of interest rates. A specific contribution by the ECB to reduce unemployment in the euro area seems not warranted. The introduction of the new monetary framework for all euro area member countries has already produced a strong decline in real long-term interest rates which is the best contribution of any monetary policy to growth and employment

The ECB's navigation system which is based on the two pillars of a "reference value" for broad money" and the "broadly based assessment of the outlook for future price developments" needs major modifications. In its present form it meets neither the criterion of transparency nor the criterion of accountability. In addition, there is a risk that it is not able to detect demand or supply shocks as early as possible. The "reference value" for money can be

regarded as a rudimentary form of monetary targeting. But it is not clear which role such a “reference value” will play if it cannot be controlled by the ECB. The “broadly based assessment” reminds of an “inflation forecast” but the ECB pretends that this is not the case. Difficult to understand is the fact that monetary aggregates and short-term interest rates are not included in the broadly based assessment. The interrelationship between the two pillars is unclear. Compared with these ambiguities of the SOMPS, the strategy of “inflation targeting” as it is practised by the BoE and other central banks is more transparent. This is especially the case if the central bank is providing a real growth projection in addition to an inflation forecast. The competition among many national and international forecasting agencies guarantees a high degree of accountability.

At the level of indicators for the actual monetary policy stance the ECB has made no explicit statements which indicator(s) should be used to assess the stance of its monetary policy. However, in its Bulletins it is focussing more and more on the short-term real interests rate. In fact, this indicator has the advantage of being completely controllable by the central bank in the short run. The short-term real rate has a very strong effect on the rates that commercial banks charge to their customers. All recessions have been triggered by a major increase in these rates. The yield curve has many similarities with the real short-term interest rate but it is not perfectly controllable and lacks a sound theoretical basis. Given the importance of the real short-term rate, the actual stance of the ECB’s monetary policy is more expansionary than in the last 18 years. However, the Taylor rule and experience of the Fed show that there is still a certain potential for a further reduction of short-term rates.

At this stage it is not possible to give a clear answer to the central question posed by the Subcommittee “whether or not the ECB is interpreting and putting into practice correctly Article 105 of the Treaty.” It is certainly necessary to make a distinction between the SOMPS and the actual interest rate policy of the ECB.

If one takes the SOMPS literally, one could come to the conclusion that the ECB will follow a monetary policy which is less responsive to demand shocks than the policy of the Fed or the Bundesbank. Such an approach would mean that the ECB is not fully using its potential for stabilising real output and employment although such a policy would not endanger the target of price stability. It would imply that the ECB is not fully supporting the economic policies in the Community. However, a clear assessment of these issues is very difficult as the “two

pillars” of the SOMPS are of an extremely vague nature. Therefore, the ECB should be asked to make its strategy more explicit and to reconsider its position vis-à-vis the strategy of “inflation targeting”.

In its practical policy the ECB shows a degree of flexibility which is difficult to reconcile with the SOMPS and the statements of its representatives. This is clearly shown by the fact that the present interest rate level differs only by half a percentage point from the value of the Taylor rule, which is based on a very activist approach to monetary policy. Thus, the practice of the ECB monetary policy is much more in line with the requirements of the Treaty than its conceptual framework. In this respect, the ECB is very much in the tradition of the Bundesbank which was solemnly preaching a monetarist doctrine while it followed a quite pragmatic policy.

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1. Introduction

There is no doubt that the European Central Bank and the euro had a brilliant start. Above all, the historically low long-term bond yields reflect the enormous trust of international investors in the new currency. This success is mainly due to the well designed monetary constitution which is enshrined in the Maastricht Treaty, but it is also attributable to the skilful preparatory work by the European Monetary Institute and the European Central Bank (ECB). After the successful launch of the euro it is now the time for a more detailed analysis and discussion of the ECB's monetary policy framework which is laid down in the "stability oriented monetary policy strategy" (SOMPS).¹

In my presentation I will analyse this strategy in the following order:

- At the level of **final targets** of monetary policy I will discuss the theoretical implications of the ECB's medium-term target for price stability on other macroeconomic targets. This shows in which way the ECB is able to fulfil the mandate of Article 105 of the Treaty.
- In order to reach the target of price stability in a way which allows the realisation of other macroeconomic targets as far as possible the ECB needs a "**navigation system**". It should help to identify whether the main target and the other targets can be reached at a given policy stance or whether a more restrictive or more expansionary course of monetary policy is required. The ECB has decided to assign a "prominent role" to money by using the money stock M3 as a "reference value" for its monetary policy. The second pillar of its strategy is a "broadly based assessment of the outlook of price developments". I will discuss whether the two pillars of SOMPS can be regarded as a transparent "navigation system", especially in comparison with the strategy of "inflation targeting."
- At the level of **operating targets** a monetary policy strategy should show whether the actual policy stance is in line with the requirements determined by the "navigation system". This leads to the difficult question of determining adequate indicators of monetary policy. In the present discussion different indicators are used (yield structure, nominal and real interest rates, long-term and short-term interest rates). The ECB has not yet clarified which indicator(s) it intends to use for this purpose.

Following this structure I will try to develop a simple framework for the analysis of European monetary policy. Of course, it will not be possible to answer all relevant questions, but at least it is intended to identify those areas where additional research is needed.

¹ The SOMPS was published in ECB Press Releases of 13 October 1998 and 1 December 1998. It is discussed in detail in ECB (1999a).

2. The final targets of monetary policy

2.1. The definition by the ECB

Article 105 (1) of the Treaty stipulates: "The primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Community with a view to contributing to the objectives of the Community as laid down in Article 2." In the SOMPS the ECB has given a more precise formulation of its target:

"Price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%".

And:

"Price stability is to be maintained over the medium-term."

This definition of the primary objective of the ECB's monetary policy is much more explicit than the formulations that can be found in the previous Bundesbank Act or in the Federal Reserve Act. Nevertheless, it gives rise to three important questions:

- What does the predominance of price stability imply for the pursuit of other macroeconomic targets?
- Above all is the medium-term perspective of the ECB in line with the requirements of Article 105 of the Treaty and how can this be compared to the practice of other central banks?
- Is the ECB's concrete definition of "price stability" sufficiently transparent and how does it take the difficult measurement problems of "inflation" into account?

2.2. Price stability versus real output and employment

In order to discuss the interrelationship between price stability and other macroeconomic targets, it is useful to work with a basic macroeconomic framework. This makes it possible to analyse the effects of major shocks on the price level on the one hand and on output (or the output gap) and employment on the other hand. These shocks are:

- a **demand shock**, e.g. a decline (increase) of export demand due to a real appreciation (depreciation) or a decline (increase) of private investments due to a deteriorated (improved) industrial confidence.

- a **supply shock**, e.g. a decline (increase) in commodity prices or a decline (increase) of nominal wages which is in not in line with changes in productivity.

If a **negative demand shock** occurs, the aggregate demand curve (AD) shifts to the left (Chart 1) . Thus, the price level declines together with real output (an output gap Y^*-Y' opens) and employment. In this situation a central bank that targets the price level has to pursue an expansionary monetary policy. In our model this shifts the aggregate demand curve back to its initial level. Obviously there is no conflict between price stability on the one hand and real output and employment on the other hand.²

In the situation of a **supply shock** things are more complicated. For instance, if there is major increase in oil prices, the aggregate supply curve (AS) shifts to the left (Chart 2). The central bank has now three main options:

- It can try to keep the level of real output stable, which requires an expansionary monetary policy. As a result, the price level increases even more.
- It can try to stabilise the price level, which requires a restrictive monetary policy. In this situation the output decline is magnified.
- It can follow a passive policy stance, i.e. keep the money stock stable. In this case, the shock affects both targets more or less in the same way.

But this conflict only exists in the very short-run as the positively sloped aggregate supply curve is valid for a very short-term analysis only. It crucially depends on the assumption of fixed **nominal** wages. As soon as nominal wages are adjustable, the supply curve becomes **vertical** (Chart 3). Because of the supply shock the full employment output has declined. In this case monetary policy is no longer able to achieve the previous employment or output level. This can only be reached if the trade unions are willing to accept a decline in real wages which would shift the AS curve back to its initial level. Only in the very special case where trade unions would accept a **real** but not a **nominal** wage reduction, an expansionary monetary policy could help to reach the previous employment level in the medium term.

² See also Mishkin (1998, p. 21). “Indeed, inflation targets can increase the flexibility of the central bank to respond to declines in aggregate demand because declines in aggregate demand that cause the inflation rate to fall below the floor of the target range will automatically stimulate the central bank to loosen monetary policy without fearing that its action will trigger a rise in inflation expectations.”

2.2.1. *Demand shocks*

How does the SOMPS deal with these two theoretical cases? First, the speeches of the ECB's board members and some ECB publications could lead to the impression that **demand shocks** do not appear to play a major role in the philosophy of the ECB. For instance, the general statement by Duisenberg (1999b)

“A monetary policy reaction to inflationary or deflationary pressures may cause short-run fluctuations in real output.”

only makes sense in the specific situation of a supply shock. If an inflationary or deflationary pressure arises by a demand shock, the monetary policy reaction helps - as shown in Chart 1- to stabilise output and employment. Second, the ECB doesn't seem to be willing to respond to demand shocks. Duisenberg (1999a) puts this as follows:

“It would be overambitiuos and therefore risky to steer the economy in the short term. Fine-tuning would more likely lead to instability than to stability.”⁴

And:

“The medium-term orientation of the monetary policy of the Eurosystem should help to avoid excessive fluctuations in real economic activity.” (Duisenberg 1999b).

This leads to the conclusion that the ECB seems to be either not fully aware of the demand shocks or it sees no possibility to deal with such disturbances in an adequate way. The latter could be justified by a large body of theoretical literature which emphasises time and again Friedman's problem of “long and variable lags” in monetary policy. While these problems are very serious indeed, it seems problematic to completely disregard short-term cyclical fluctuations in the conduct of monetary policy.

First, there is a strong empirical evidence that all major central banks have been very much concerned about the cyclical situation. As Charts 4 and 5 show, in the last ten years the Bundesbank's and the Federal Reserve's interest rate policies have been very much influenced by the output gaps of their economies. This important role of output gaps is also

⁴ See also Duisenberg (1998a): „A monetary policy reaction to short-run fluctuations in the price level would provide the wrong signals to the market and cause unnecessary interest rate volatility.”

confirmed by the rather good fit of the “Taylor rule” in the United States and in Germany⁶ (Charts 5 and 6). According to this rule the real interest rate ($i-\pi$) is determined by the output gap and by deviations of the inflation rate (π) from a target rate (π^*) plus a “neutral” real interest rate of 2 percent:

$$i-\pi = \frac{1}{2} (Y^*-Y)/Y^* + \frac{1}{2} (\pi - \pi^*) + 2$$

Second, there is a risk that a central bank which wants to maintain a “neutral” stance vis-à-vis short-term demand shocks, can cause an additional instability of real output. The traditional IS/LM-model shows (Chart 8) that a demand shock leads to a decline of real output (Y') and interest rates (i'). The decline of interest rates can be regarded as a “built-in-stabiliser”. However, this requires that the central bank targets the money stock. If it targets the interest rate at i^* , this stabiliser would become ineffective and the decline of real output would be amplified (Y''). Thus, without a consequent monetary targeting it is very difficult to determine a “neutral” level of interest rates. The specific problems of monetary targeting will be discussed in the next section.

2.2.2. *Supply shocks*

As already mentioned, the framework of the SOMPS is designed in a perfect way to cope with supply shocks. In this situation it is absolutely necessary to target the price level in the medium-term only, as a short-term reaction to an inflationary or deflationary pressure would definitely lead to an undue instability of real output and employment. This part of the strategy reflects the experience of the early 1970s and 1980s with their strong supply shocks. In these phases even a very ambitious central bank like the Deutsche Bundesbank had never tried to keep the price level stable. The implicit inflation targets of the Bundesbank (Table 1) show that it had always been willing to accommodate supply shocks to the price level. It had even accepted a temporary acceleration of the targeted inflation rate. Thus, in the situation of supply shocks, the medium-term orientation of the SOMPS will avoid unnecessary conflicts between price stability and real output (and employment).

⁶ See Clarida and Gertler (1996, p. 47): “ (...) from a variety of evidence, both informal and formal, we find that the performance of the real economy also influences its decision-making. (...) In particular, our formal analysis suggests that, for the most part, the Bundesbank has adjusted short term interest rates according to a kind of modified Taylor rule (...). See also Clarida, Gali and Gertler (1997).”

Table 1: Implicit inflation target of the Bundesbank*(Derived from the Bundesbank's inflation assumption for its monetary targets)*

Year	Implicit target	Year	Implicit target	Year	Implicit target
1975	6.0	1983	3.5	1991	2.0
1976	4.5	1984	3.0	1992	2.0
1977	3.5	1985	2.0	1993	2.0
1978	3.25	1986	2.0	1994	2.0
1979	3.0	1987	2.0	1995	2.0
1980	4.0	1988	2.0	1996	2.0
1981	3.75	1989	2.0	1997	1.5-2.0
1982	3.5	1990	2.0	1998	1.5-2.0

This does not mean that such conflicts will not arise at all. For instance, if the trade unions are permanently trying to increase their real wages beyond the productivity growth, this causes an output decline and inflationary pressure. In this situation the central bank's attempts to keep the price level stable over the medium term ("disinflation") will lead to an additional output decline. However, this result is mainly caused by excessive wage increases and not by a flawed monetary policy.

2.2.3. *The macroeconomic policy assignment*

This analysis shows that the optimum macroeconomic policy assignment is conditional on the nature of shocks which affect the euro area. In the situation of a demand shock monetary policy should assume a comprehensive responsibility for price stability, full employment and full capacity output. As demand shocks are normally of a short-term nature this requires a monetary policy reaction even to short-term deviations of the price level. In case of a supply shock it is important to target monetary policy on price stability in the medium-term while the trade unions are responsible for full employment and a return to the original output level. In addition the government can try to improve productivity by supply-side policies. In situations without shocks, a "neutral stance" of monetary policy is required. If the central bank targets the interest rate, a "neutral real interest rate" (Blinder 1998, p. 31) should be targeted. Of course this is a difficult concept:

“It is therefore most usefully thought of as a concept rather than as a number, as a way of thinking about monetary policy rather as the basis for a mechanical rule “ (Blinder 1998, p. 32)

Table 2: Optimum policy assignment for the euro area

	demand shock	supply shock	no shock
Price stability	<i>short-term:</i> monetary policy	<i>medium-term:</i> monetary policy	monetary policy: “neutral stance”
Full employment	monetary policy	trade unions: nominal wage increase below/beyond productivity increase	trade unions: productivity oriented wage policy
Full capacity output	monetary policy	government: supply side policies	government: supply side policies

This policy assignment is very much in line with the general orientations that can be derived from a Taylor rule. In the situation of a demand shock, both determinants of the real interest rates move into the same direction, which requires an interest rate response. As Chart 2 shows, a supply shock reduces output and increases inflation in the short run. Thus, the two determinants of the rule compensate each other. The interest rate can be held constant. In this situation the Taylor rule comes close to a nominal GDP rule.⁸ In the longer run, the shock reduces the potential output so that the output gap vanishes. After a one-time jump the price level remains constant so that the inflation term does also not require an interest rate reaction.

Table 3: Taylor rule and shocks

(Signs indicate the require change in the nominal interest rate)

	Inflationary demand shock	Supply shock (increase in oil prices) short-term	Supply shock (increase in oil prices) long-term
$\pi - \pi^*$	+	+	0
$(Y - Y^*)/Y^*$	+	-	0
Interest rate	Increase	Constant	Constant

⁸ It is not identical with a nominal GDP rule as this rule would require a decline in interest rates.

Of course, the role of coping with demand shocks could also be assigned to national fiscal policies. However, in case of shocks which affect the whole euro area, the ECB's monetary policy seems to have a clear comparative advantage over national fiscal policies:

- The ECB's decision processes are much faster than those of the national governments. In addition, monetary policy measures can be reverted much easier once a shock subsides.
- The ECB can guarantee a comprehensive policy reaction for the whole euro area while individual national governments could always be tempted to adopt a free-rider position.
- The growth and stability pact leaves little room for expansionary fiscal policies at the national level.

A comparison of this assignment with the SOMPS and statements by the ECB's representatives shows that it seems necessary to discuss the ECB's role in short-term macroeconomic stabilisation in detail:

- Given the successful performance, especially of the Fed, the standard argument that monetary policy is unable to deal with short-term economic fluctuations needs a more careful analysis. The ECB should also make more explicit how it defines the "medium run" and "short run". Otherwise there is a risk that the ECB's monetary policy does not fully use its potential for macroeconomic stabilisation or that it even amplifies output and employment fluctuations by its interest rate policy.
- Thus, at least more attention should be devoted to the question how a central bank can find a "neutral policy stance" which allows a stabilising role of interest rates in situations with demand shocks.

2.3. The quantitative definition of price stability

A topic which is related to the ECB's reaction to demand shocks is the quantitative definition of price stability. It is widely agreed that due to measurement problems a stable price level is compatible with a certain increase of the price index. Thus, in practical monetary policy the academic discussion of "price-level stability vs. low inflation" (Svensson 1999) is of secondary importance.⁹ As already mentioned, even the Bundesbank has never tried to keep the price level stable (Table 1).

⁹ Even Svensson (1999, p. 6) admits: "Still, I believe that low and stable inflation may be a sufficiently ambitious undertaking for central banks at present."

This leads to the difficult problem of defining a non-inflationary rate of inflation (NIRI) for the euro area. In the first publication of the SOMPS the ECB has defined its target as “below 2 %”. As this definition was rather ambiguous, the ECB (1999a, p. 46) has made its intentions more explicit. The NIRI lies in range with an upper bound of “below 2 %” and a lower bound of greater than zero.¹⁰ From the ECB’s derivation of the “reference value” for money one can calculate a NIRI of 1.5 %.¹¹ Obviously a more transparent definition of the price stability target (either a clearly defined midpoint or a precise target range) would have been possible.

Compared with the inflation targets of other central banks the ECB has decided for a rather ambitious target (Table 4).

Table 4: Inflation targets of other central banks

Central Bank	Target
Bank of England (BoE)	2.5 % (± 1 %)
Bank of Canada	1 - 3 %
Bundesbank	1985-1996: 2 % 1997-1998: 1.5-2.0 %
Reserve Bank of Australia	2-3 %
Reserve Bank of New Zealand	0-3%
Swedish Riksbank	2% (± 1 %)

Thus, for the ECB an inflation rate in the range between 2 % and 3 % would already mean “inflation” and require a restrictive monetary policy reaction, while for all other central banks such an outcome would still be considered as “price stability” or as something very close to it.¹² On the other hand, the present HICP inflation rate of 0.8 % would be close to deflation for all central banks except the Reserve Bank of New Zealand. Thus, for most central banks it would indicate a need for an expansionary policy stance, while the ECB

¹⁰ ECB (1999a, p. 47): „Therefore, the definition has avoided explicitly embodying specific estimates of the HICP measurement bias by not setting the lower bound for measured price increases at zero.“

¹¹ The ECB assumes a trend growth of real GDP in a range of 2-2 ½%, the decline of the velocity of money is assumed to be in a range of ½ % -1%. With the midpoints of these two ranges and a reference value of 4 ½ % for M3 one can calculate a NIRI of 1 ½ %.

¹² In the United Kingdom deviations of the inflation rate from the target by 1 % or more, on either side, require an open letter by the Governor of the BoE to the Chancellor of the Exchequer explaining why the discrepancy has occurred. (Allen 1999)

seems to regard this as “price stability”. The ECB justifies its ambitious approach as follows:

“Eurostat has expended considerable efforts to reduce or to eliminate the measurement bias in the HICP. It is therefore probable that the bias in the HICP is smaller than that observed in national CPIs of the countries comprising the euro area.” ECB (1999a, p. 46)

But it also admits:

“The success of these attempts to minimise the measurement bias in the HICP is as yet unknown.” ECB (1999a, p. 46).

It is obvious that the problem of defining the NIRI precisely becomes especially relevant in a period of very low inflation. If the NIRI is set too low, it prevents a monetary policy reaction to deflationary tendencies. However, it is clear that the measurement problems are huge.¹³

Thus, a very careful approach should be applied. A relatively simple solution can be developed for the case of a negative demand shock. In this situation, the ECB has the possibility to use the output gap as an additional indicator for deflationary tendencies. This allows to derive an additional theoretical justification of the Taylor-rule. It implies that the central bank uses two different indicators for the same shock:

- the output gap and
- the deviation of the inflation rate from the NIRI.

Due to measurement problems with both indicators, the ECB can use the “Taylor rule” as an indicator for demand shocks which is a simple arithmetic means of two interrelated variables. This again emphasises the need to observe short-term fluctuations of the real output in the conduct of the ECB’s monetary policy.

¹³ Hoffmann (1998, p. 195) concludes a very detailed study on the measurement bias of the CPI in Germany: „Es handelt sich also um eine mehr oder weniger begründete Spekulation, für die der Anspruch auf Wissenschaftlichkeit nur sehr eingeschränkt erhoben werden kann.“

2.4. A specific contribution of monetary policy to the unemployment problem?

The simple macroeconomic models that were used so far in this section have the disadvantage that they are of a completely static nature. Thus, they cannot be used to assess the impact of monetary policy on economic growth and the effects of a higher growth rate on employment. Of course, these relationships are very complicated. The ECB expects that price stability will contribute to an increase in investment activity:

“One particular benefit to be derived from a stable price environment is that borrowers are not requested to pay extra, to cover the risk of an unexpected rise in the general price level. As a consequence, real interest rates, i.e. interest rates for expected inflation will be lower, thereby encouraging people to commit more resources to productive activities.” (Duisenberg 1998b)

In fact, Chart 9 shows that real long-term interest rates in the euro area are now at a very low level compared to the 1990s and the 1980s and also in comparison with the United States and to the second oil price shock.

3. The “Two Pillars”

If a central bank wants to reach its final target(s), it needs a “navigation system” which ideally would help to identify

- present or future shocks that could endanger the realisation of the final target(s)
- a “neutral” policy stance for a medium-term oriented policy.

In the SOMPS the ECB has decided to use “two pillars” for these purposes: a “reference value” for the money stock M3, and a “broadly based assessment of the outlook for future price developments”.

3.1. ”A prominent role for money”

Monetary targeting has a simple logic. In principle it should allow to derive a medium-term path for the money supply which is consistent with a stable price level and a steady growth of real output. Thus, under ideal conditions monetary targeting would provide a “neutral” stance of monetary policy. If the money stock deviates from its target, an increase or decrease of short-term interest rates is required. Of course, such a framework is not able

- to identify shocks that are caused from other factors than monetary policy,
- nor to prescribe a reaction of monetary policy to such shocks.

As already mentioned, such a neutral role of monetary policy could be justified by the difficulties of forecasting demand or supply shocks and by the “long and variable lags” of monetary policy. For this approach, which implies that the money stock is used as an “intermediate target” of monetary policy, two important conditions must be met (Issing 1993, p. 167):

- The central bank has to be able to control the money stock with its operating target(s).
- The money stock has to be a main determinant of the future inflation rate, i.e. it must serve as a leading indicator for the inflation rate.

Thus, by controlling monetary growth with short-term interest rates a central bank can indirectly control the inflation rate (its final target).

3.1.1. *Controllability of the money stock M3*

Although the ECB assigns a “prominent role” to money, it does not pretend being able to control the money stock M3:

“Therefore, the euro area monetary aggregate for which the reference value is announced does not need to be controllable in the short run, using a short-term interest rate influenced closely by the Eurosystem.” ECB (1999a, p. 48)

This lack of controllability can be due to two reasons:

- The demand for the money stock M3 is stable in the long run, but unstable in the short run.
- The demand for the money stock M3 depends on interest rate variables that cannot directly be controlled by the ECB.

The first problem is a typical feature of all money demand functions.¹⁴ Irregular short-term fluctuations of the demand for money make it very difficult to use divergences between the actual money stock and its target as a basis for interest rate policy. Thus, the “reference value” for the growth rate of broad money will in general provide little help for determining a “neutral” monetary policy stance of the ECB on a day-to-day basis.

The second problem is more serious. If the operating targets of the ECB do not have a systematic influence on the growth rates of M3, the whole approach becomes inapplicable. In this context it is important to note that the stability of the demand for money is a necessary, but not a sufficient condition for monetary targeting. If the interest rate used in such regressions is not controllable by the central bank (e.g. a long-term rate, or a difference between a long-term and a short-term rate), the second condition for an intermediate variable is not met. In fact, in the past the euro money stock M3 shows very little reaction to changes in the short-term nominal interest rates in the euro area.¹⁵ If there is any relationship, there seems to be a positive interest elasticity of the money demand for euro M3 (Chart 10).

¹⁴ For a survey see Schächter (1999).

¹⁵ This is different for the money stock M1 which according to the ECB is “controllable using short-term nominal interest rates” (ECB 1999a, p. 48). However, this aggregate has the disadvantage that the second condition for an intermediate is not met. According to the ECB (1999a, p. 48) „euro area narrow money (...) exhibited neither stability nor significant indicator properties for the price level“

The ECB is aware of this control problem. Thus, it avoids using the term “intermediate target” and speaks of a “reference value” instead. However, this raises the question of the function of such a reference value compared with the role of an intermediate target.

The lack of controllability seems to be a general problem of monetary targeting. This applies even to the Bundesbank which was – besides the Swiss Nationalbank – the most fervent adherent of this approach. The German experience shows that the control problem exists not only in the short run but also in the medium and long run. Chart 11 presents the development of the money stock M3 in Germany after the German unification and a medium-term target path of 5 % which is based on the Bundesbank's annual targets. Even over such a long period the Bundesbank had been unable - or unwilling - to reach the target. It is even more astonishing that although monetary growth was too strong most of the time, after September 1992 the Bundesbank has continuously reduced its interest rates. This result is also shown in more detailed analyses based on reaction functions for the Bundesbank's interest rates (Clarida and Gertler 1996, Schächter 1999). They unanimously come to the conclusion that the monetary targets have only been of minor importance for the Bundesbank's decisions.

The German experience also casts some doubts on the indicator qualities of the money stock. The ECB states:

“(…), substantial or prolonged deviations of monetary growth from the reference value would, under normal circumstances, signal risks to price stability of the medium term.”
(ECB 1999a, p. 48).

However, the German case shows that in spite of a “excessive” monetary growth after 1991 inflation had come down substantially. This is also confirmed by Svensson (1999, p. 34):

“It is easily shown (...) that such a money-growth indicator will be a relatively useless indicator of risks to price stability and, indeed, mostly a noisy indicator of the deviation of current inflation from the inflation target.”

In fact, Chart 12 shows that the growth rate of broad money moves more or less parallel to the inflation rate in the euro area. Since 1995 the growth rate of money signals an acceleration of inflation, but the opposite has happened.

3.1.2. *Implications for the ECB's policy*

The analysis of the “first pillar” of the SOMPS leads to a somewhat frightening result. The ECB maintains that the broad money growth is a major determinant of future price trends:

“Inflation is ultimately a monetary phenomenon” (ECB 1999a, p. 47).

But if it the ECB is unable to control broad money, it follows that it also hasn't any control over the price level. Of course, the ECB admits only a lack of control in the short run, but it does not demonstrate how it might be able to steer broad money over the medium run. If the euro demand for broad money does not depend on short-term rates, there is no obvious lever for controlling this aggregate in the medium run. For this inconsistency the mainly semantic difference between an “intermediate target” and a “reference value” seems to be of little help.

In addition, a “navigation system” based on the quantity theory of money bears the risk that it excludes any monetary policy reaction to temporary demand shocks. As mentioned before no central bank has followed such a “passive” policy stance. Adhering strictly to such a guideline would imply that the ECB is not fully supporting general economic policies in the Community.

Thus, the ECB should follow the practice of all other central banks which abandoned monetary targets as a dominant navigation system for their practical policy.¹⁶ It has already been mentioned that even the Bundesbank has never paid much attention to its monetary targets. This does not mean that monetary growth has no information content for monetary policy, but it is questionable whether it deserves “a prominent role”.

This requires a reassessment of the first pillar of the SOMPS. For the transparency of its monetary policy it is not very helpful to proclaim a reference value for broad money which

¹⁶ A closer look at the quantity theory of money shows that this theory is mainly valid for countries where the central bank finances a high government deficit. Only under this condition a stable (one to one) relation between an exogenous increase of the money stock and an increase in aggregate demand is given. See Bofinger et al. (1997). Taylor (1998, p. 9) comes to a similar conclusion: “When inflation gets very high or negative, interest rates lose their usefulness because expectations of inflation shift a lot and are hard to measure. In these circumstances interest rate rules lose their advantages over money supply rules and break down completely.” Situations with very high inflation are normally situations where the central bank finances the government deficit.

cannot be controlled by the ECB. It is also not clear whether such a “reference value” will be able to provide a “neutrality” benchmark for the interest rate policy of the ECB that would be required for a strategy which tries to target the price level “in the medium run” only.

3.2. “A broadly based assessment of the outlook for future price developments”

The second pillar of the SOMPS is “a broadly based assessment of the outlook for price developments and the risks to price stability in the euro area” (ECB 1999a, p. 49). At first sight, this pillar seems to be identical with an inflation forecast by the ECB with a confidence band. However, the ECB tries to avoid that term “forecast” although it is unclear why an “assessment of the future inflation outlook” is different to an “inflation forecast”.

The ECB intends to base this assessment on “a wide range of economic indicators” which “will include many variables that have leading indicator properties for future price developments”. They “include inter alia:

- wages,
- the exchange rate,
- bond prices and the yield curve,
- various measures of real activity,
- fiscal policy indicators,
- price and cost indices and
- business and consumer surveys”. (ECB 1999a, p. 49)

It is somewhat astonishing that the ECB has no intention to include monetary data (money stocks and/or short-term interest rate) in this pillar. Nevertheless, all the indicators are important determinants of an inflation forecast. In fact, the ECB states:

“Obviously, it will also be useful to look at inflation forecasts derived using all these variables (...). In this respect, the Eurosystem (...) will also produce its own assessment of the future inflation outlook.” (ECB 1999a, p. 49)

While this is obvious, the conclusions drawn by the ECB are somewhat vague:

“ (...) a forecast cannot encompass all the indicator variables that are important for monetary policy. Nor can it always incorporate indicators in a timely manner. Therefore, a thorough analysis of individual indicator variables plays an important role in the overall broadly based assessment of the outlook for future price developments, in addition to any role these variables may have in the forecast. *Both* (my italics; P.B.) forecasts and the analysis of individual indicators will help to inform the Governing Council about the specific nature of the macroeconomic environment and the disturbances to the economy, on which monetary policy decisions would normally depend.” (ECB 1999a, p. 49-50).

This statement raises several important questions:

- Which variables cannot be encompassed in an inflation forecast although they are important for a monetary policy aiming a price stability?
- Why can a forecast not incorporate monetary policy-relevant indicators in “a timely manner”?
- In which way does “a thorough analysis of individual indicators” in the “broadly based assessment of the outlook for future price developments” differ from the standard preparation of an inflation forecast?
- What is the additional information that can be obtained from the analysis of individual indicators compared with a comprehensive inflation forecast?

All in all it is very difficult to understand the rationale of the second pillar of the SOMPS. Does it simply mean that the ECB wants to take into account all information that is relevant for future price developments? This would not be objectionable, but in this case this pillar could not be regarded as a major contribution to the transparency of the ECB. It would simply state the obvious. But even in this case, it would not be clear why the ECB makes a difference between a “forecast” and an “assessment”. Does it avoid the term “forecast” because it is not willing to publish its inflation forecasts? In addition, how will the ECB take its decisions if it excludes “mechanical responses to a small number of (...) forecasts”. (ECB 1999a, p. 50). Is it really possible to decide on interest rate changes without a - more or less precise - inflation forecast?

3.3. “A new and distinct strategy?”

Given the difficulties in understanding and interpreting both pillars, it is difficult to qualify the SOMBS in the same way as the ECB:

“The Eurosystem’s stability-oriented monetary policy, as described above, is a new and distinct strategy, which reflects the unique circumstances and institutional environment that will face the Eurosystem.” (ECB 1999a, p. 50).

Above all it remains unclear, how the strategy is able to “identify those economic disturbances that threaten price stability” (ECB 1999a, p.50). The “reference value” for M3 is at best able to avoid shocks that are caused by the ECB, but being derived from the quantity theory of money it is unable to deal with demand or supply shocks. The second pillar might have the potential of identifying such shocks, but from the vague and very general statements in the SOMPS it is unclear how this could be achieved. As a consequence, it is an open question as well how the SOMPS can “prompt a monetary policy response which is able to address these threats.”

A further problem is related to the relationship between the two pillars. It seems obvious that monetary developments are an important determinant of any assessment of future price developments, especially as the ECB is not able to control M3 with its operating targets. Thus, it would seem more appropriate to speak of one instead of two pillars. However, if the ECB wants to maintain two pillars, it will be faced with the difficult problem of producing an assessment of future price developments without using monetary aggregates. There could also be the problem of conflicting signals from the two pillars.

3.4. Why not an inflation target?

The advantages and the disadvantages of the SOMPS can be shown more explicit if it is compared with the strategy that is used by the Bank of England (BoE) - and some other central banks - since 1992. The “inflation targeting” of the BoE¹⁷ differs from the SOMPS in three main points:

- The inflation target is defined in a precise way: a 2 ½ % increase of the retail price index excluding indirect taxes (RPIX).
- The BoE provides regular projections for the RPIX for two years in advance under the assumption of constant nominal interest rates. The projection is presented as a fan chart depicting the probability distribution for inflation like a contour map. In addition it gives a projection for real GDP.

¹⁷ For a recent survey see Allen (1999)

- In the BoE's projections monetary aggregates play an important role but they are not given a "predominant role".

If one compares the two strategies, it seems obvious that the approach of the BoE provides more transparency than the SOMPS. With the precise inflation target and the inflation projection the public is given a clear framework for the assessment of monetary policy. The inflation projection together with a projection for real GDP shows in a transparent and verifiable way how the BoE assesses the impact of demand and supply shocks. In addition, changes in interest rates always require a modified inflation projection.

In spite of these advantages of an "inflation targeting", the ECB has not been willing to follow this approach. In the words of Issing (1998):¹⁸

“ (...) in the current circumstances, a pure 'direct inflation targeting' strategy is too simplistic for the ESCB, and possibly even misconceived. (...) Because of the well-known lags in the transmission mechanism of monetary policy to the economy in general, and the price level in particular, it is impossible for a central bank to control inflation directly. Therefore, 'inflation targeting' in practice means 'inflation forecast targeting' where the central bank sets monetary policy to keep their best forecast of inflation at the level deemed consistent with price stability. (...) Forecast uncertainty is likely to be relatively large, possibly rendering the whole inflation targeting strategy ineffective. “

But if the ECB is unable to produce an inflation forecast or projection – of course using “a large element of judgement” (Issing 1998) and the information content of monetary aggregates - how will it be able to find out whether a given policy stance is adequate for achieving its final target? Issing is right that inflation forecasts for the euro area are very difficult, but an inflation forecast for a large and relatively closed economy should be easier than for smaller and much more open economies like the previous national currency areas in the EU. Already under these conditions inflation forecasts for Germany were much better than forecasts for all other macroeconomic variables. (Döpke and Langfeldt 1995).

Issing (1998) also mentions the problem that “using judgement may prevent outside observers from readily assessing the reliability and robustness of the inflation forecasting

¹⁸ Issing (1998).

procedures used by the ECB.”¹⁹ However, as there is always a strong competition of forecasts by different institutions (national and international, private and public), an inflation forecast by the ECB would always be under a close scrutiny of the public which would effectively limit all forms “judgmental manipulation” (Issing 1998) by the ECB.

Issing (1998) sees a further disadvantage of “inflation targeting” in terms of the ECB’s accountability:

“ (...) a strategy that assigns a prominent role to monetary aggregates emphasises the responsibility of the ESCB for monetary impulses to inflation, which a central bank can control more readily than inflation itself.”

A similar argument is made by von Hagen (1998, p. 20):

“ (...) monetary targeting showed that the Bank (the Bundesbank; P.B.) accepted responsibility for inflation but only for that part of inflation that was due to monetary policy, namely excessive monetary expansion.”

As the ECB has itself admitted that it is not able to control broad money in the short run (see section 3.1.1) and as it has left open how this will be possible in the medium and longer run, this advantage of the SOMPS seems not very clear-cut. In addition, the as Svensson (1999, p. 35) emphasises, the Maastricht Treaty assigns “price stability” as the primary objective of the ECB – irrespective of the underlying shock. In fact, the analysis in section 2.2.1 has shown that it is reasonable for a central bank to react to demand shocks and that the Bundesbank and other central banks have always done this. The practice of the BoE also underlines that the central bank has a clear responsibility for inflation under the strategy “of inflation targeting”. By comparing the projection and the inflation target it is relatively easy to identify which monetary policy stance has to be adopted. If, for instance, the projection exceeds the target, the central bank is under a clear obligation to adjust its interest rates. Such a procedure can also deal with shocks that are of temporary nature, for instance an increase in indirect taxes or a supply shock. In this case, the projection will show a decline of the inflation rate after one year so that a restrictive policy stance can be avoided. If a price index is used that excludes the effects of indirect taxes, such problems are avoided from the very outset.

¹⁹ See also von Hagen (1998, p. 28): “Thus, the signalling value of the inflation forecast is reduced by the complexity of its derivation leaving considerable scope for fudging and making look monetary policy better than it is.”

In sum, taking into account the many ambiguities of the SOMPS and the need of inflation forecasts (or assessments or projections) for any sensible monetary policy, it seems not clear why the ECB has been so reluctant to adopt the strategy of inflation targeting. There is no doubt that this approach – with all its obvious difficulties – would increase the transparency, the accountability and thus the credibility of the ECB. The need to make its forecasts public would also increase the ECB's awareness of demand and supply shocks. This would help to realise the target of price stability with a better performance of the other macroeconomic targets.

4. Operating targets and indicators of the ECB

As mentioned above, monetary policy is a three-stage process. At the first stage the final target(s) have to be defined. At the second stage, a framework (or navigation system) has to be set up which allows to identify divergences of forecasted values of the final variable(s) from the targeted values – based on constant policy parameters. At the third stage indicators are needed which show whether and how a central bank is using its instruments in way which is indicated by the navigation system.

The SOMPS is not very explicit about these issues although it recognises the need “to prompt a monetary policy response which addresses these threats (economic shocks that threaten price stability; P.B.) and which is appropriate to both the prevailing economic circumstances and the nature of the threat.” (ECB 1999a, p. 50).

In order to identify the “monetary policy response” it is useful to concentrate on variables that can perfectly be controlled by the central bank. This restriction leaves only two candidates: the monetary base or a short-term interest rate. Given the practice of all central banks in the world, one can also exclude the monetary base and is left with the short-term rate. This rate reflects the price at which the central bank is willing to provide the financial system with base money, i.e. the input for the process of money creation for which it is the monopolist supplier.

4.1. The real short-term interest rate

For its effects on the real sector of the economy, the price of this resource has to be determined in real terms. Thus, it is the real short-term rate that matters. While it is difficult to calculate real rates for longer maturities, for a short-term range (one day up to three months) one can simply use the contemporaneous inflation rate as a deflator. As the inflation rate is relatively sluggish over shorter periods of time, the central bank is able to control such a real rate in a perfect way.²⁰

For Germany, it can be shown that the short-term rates have a very direct impact on the rates that the commercial banks charge to their customers. Chart 13 shows that the German banks

add a rather stable mark-up on the rates which they have to pay to the Bundesbank. An interesting feature of this relationship is an influence of the cyclical situation on the size of the mark-up. (Hülsewig 1999)

The empirical evidence for Germany and the United States shows that major changes in real short-term interest rates have a strong impact on real GDP. All major recessions in Germany and the United States were preceded by a substantial increase in real short-term rates (Charts 14 and 15). This outcome should not be surprising. If the central banks' main operating target had no effect on real output, it would make little sense to discuss monetary policy at all.

The ECB has indirectly acknowledged the importance of this indicator. In its Bulletin of February 1999 it has argued that because of very low real short term (and long term) interest rates "monetary and financial conditions are therefore favourable for sustained growth of output and employment in the euro area (...)" (ECB 1999b, p. 6). In its March Bulletin it explicitly discussed "Key issues for the analysis of real rates in the euro area".

Taking a look at the development of real short-term rates in a longer perspective, the present level of the real short-term interest rates in the euro area is indeed very low by historical and international standards (Chart 16). Only in the 1970s real rates were lower with an average rate of 0.9 percent in the United States and a rate of 1.9 percent in Germany. But this inflationary period seems not to be the right benchmark. Above all, the euro real rate is now much lower than in the recession of 1993. Thus, contrary to the ECB's announcements, its interest rate policy seems to take into account that the present economic situation is relatively weak. This is also confirmed by the results of the simple Taylor rule for the euro area (Chart 17). It shows that changes in real interest rates went into the right direction. An assessment of the level of interest rates depends on the parameters with which the Taylor is computed. Using an inflation target of 2 % and the average euro real rate during the 1990s of 3.5 %, the Taylor rule comes to a nominal rate of 3 %. With an inflation target of 1.5 % and an average real rate of 2.5 % (which is the value for Germany since the 1960s and which seems adequate for the euro area with its stability oriented monetary constitution), the Taylor rule produces an a nominal rate of 2.4 %. Thus, from the monetary side there are presently no

²⁰ In countries with high inflation rates, the inflation rate can become very unstable in the short run .

risks of deflation for the euro area. As the Charts 14 and 15 show, all recessions were preceded by very high real short-term interest rates.

The experience of the United States in the years 1992/93 shows that a central bank can target lower real short-term interest rates and thus try to stimulate real GDP without increasing the inflation rate. Of course, such a policy has to be executed in an extremely careful way in order to avoid inflationary expectations. In addition, Chart 9 shows that although the real short-term rates differed very much between Germany and the United States, the real long-term rates were almost similar. Nevertheless, the ECB still has a certain potential for lowering its rates without creating inflation.

4.2. The yield curve

In the discussion about monetary policy indicators the **yield curve** (defined as the difference between a long-term and a short-term rate) is often regarded as an important indicator of the monetary policy stance (Estrella and Mishkin 1995). In practice, this measure shows a very parallel movement with the real short-rate (Chart 18).²¹ This may already explain why the yield structure exhibits rather similar qualities as this indicator. But at a closer look, the yield structure has obvious disadvantages compared to the real short-term rate.

While the real rate is perfectly controllable by the central bank, the yield structure reacts to actions by the central bank as well as to the assessments of financial markets. For instance, in 1995 there was a strong long-term capital outflow from the euro area to the United States. The euro long-term rate went up (Chart 19). At the same time real short-term rates were increased but to a smaller extent than the increase in the long-term rates. As a result, the yield structure shows for 1995 a rather large spread, which could be interpreted as an indication of an expansionary monetary policy. How misleading this signal is becomes obvious if the first quarter of 1999 is compared with 1995. Today long-term and short-term rates are much lower than in 1995. But according to the yield structure, the present situation would have to be regarded as a much more restrictive monetary policy stance than in 1995.

²¹ This can be explained as follows: For a very simple calculation of the yield structure the nominal long-term rate is subtracted from then nominal short-term rate. The long-term rate can be regarded as the sum of a real rate plus the expected inflation rate. If the expected inflation rate is more or less identical with the actual rate (extrapolative expectations) one actually subtracts the actual inflation rate and a more or less constant term from the nominal short-term rate. This yields the short-term real rate plus a constant.

Above all, there is no sound theoretical basis for the yield structure. Standard theory of investment explains investment decisions with the **level** of real interest rates and leaves it open whether this a short-term or a long-term rate. Thus, if long-term and short-term rates come down in parallel this should stimulate investment, especially if the decline in the long-term has been somewhat faster than the decline in the short-term rate. That this leads to a narrowing of the yield structure should be no real problem.

Thus, the explanatory power of the yield structure has to be referred to a spurious correlation, where the short-term real rate has to be regarded as the exogenous variable which is economically relevant for an assessment of the actual stance of the ECB's monetary policy. In the present situation the signals provided by the yield curve should not be a matter of concern.

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Chart 1: Demand shock
(short-term analysis)

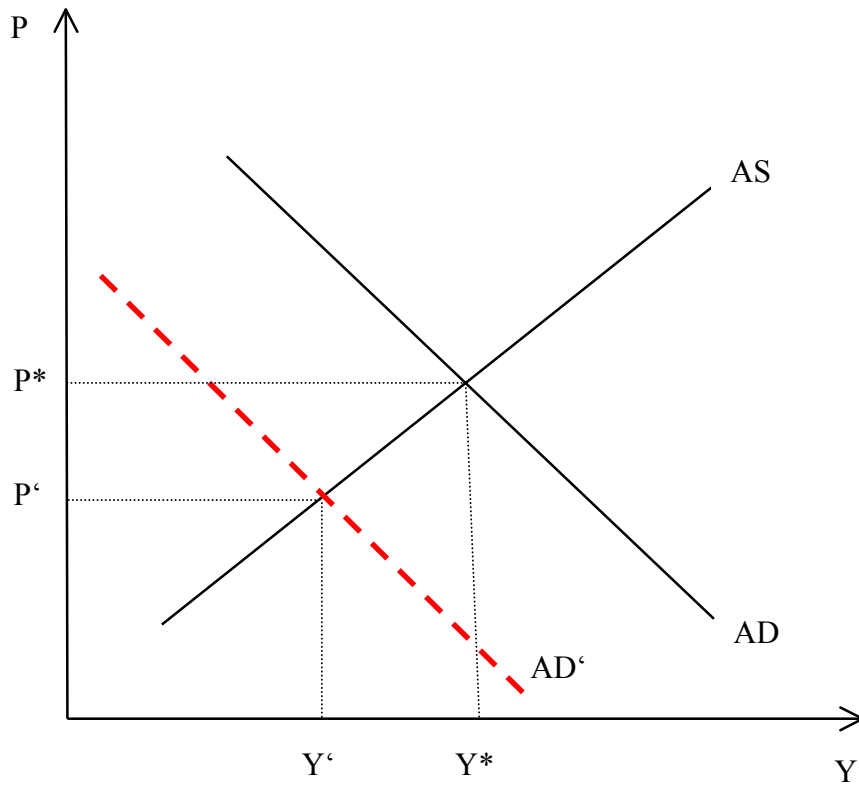


Chart 2: Supply shock
(short-term analysis)

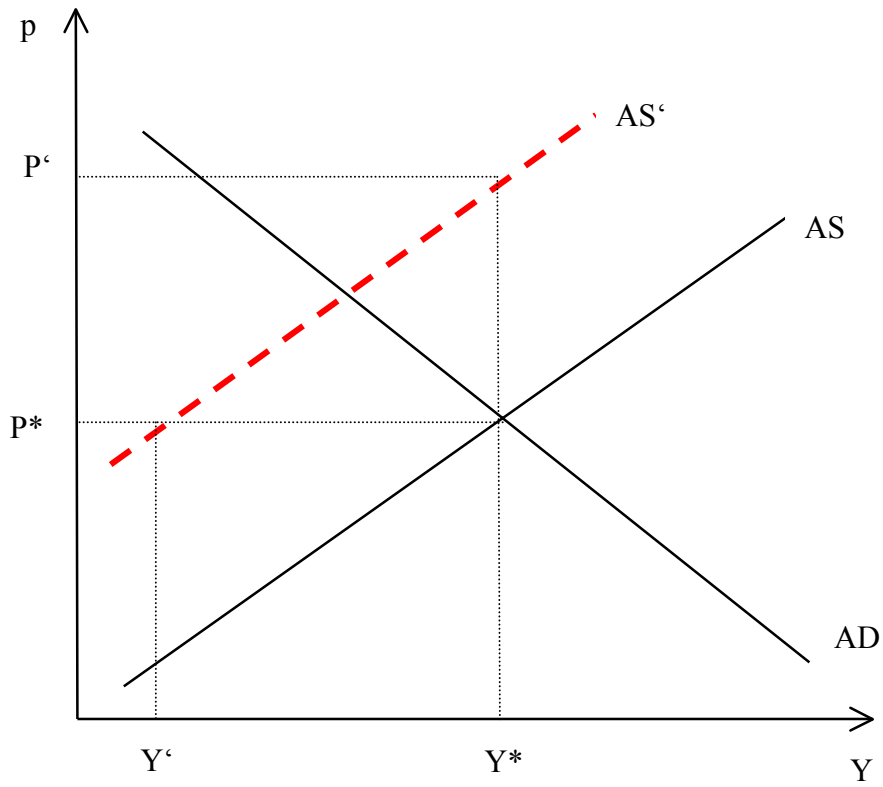
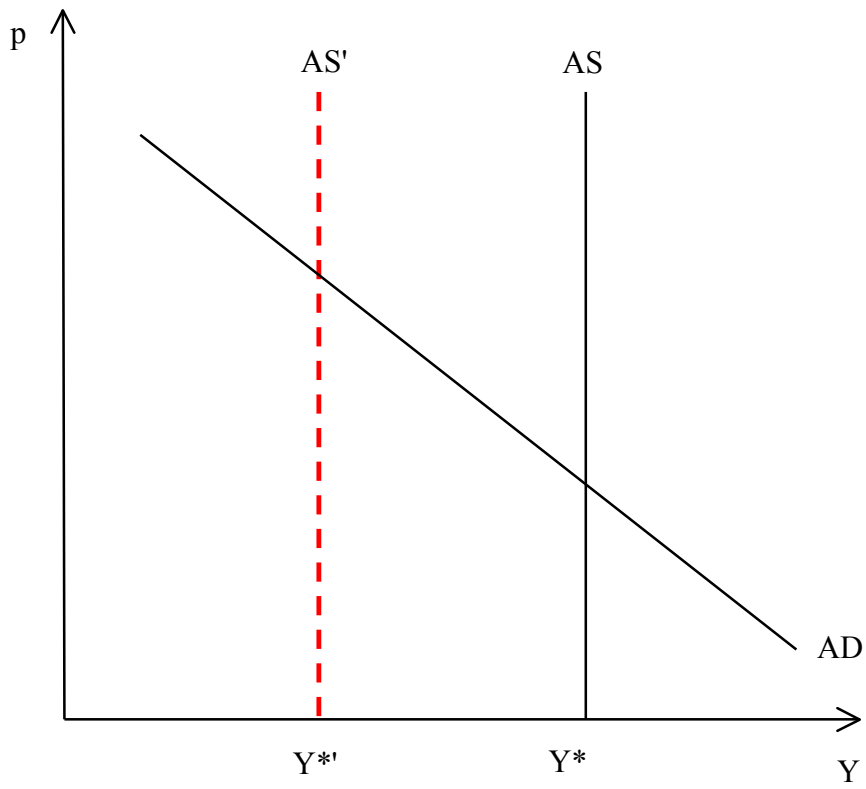
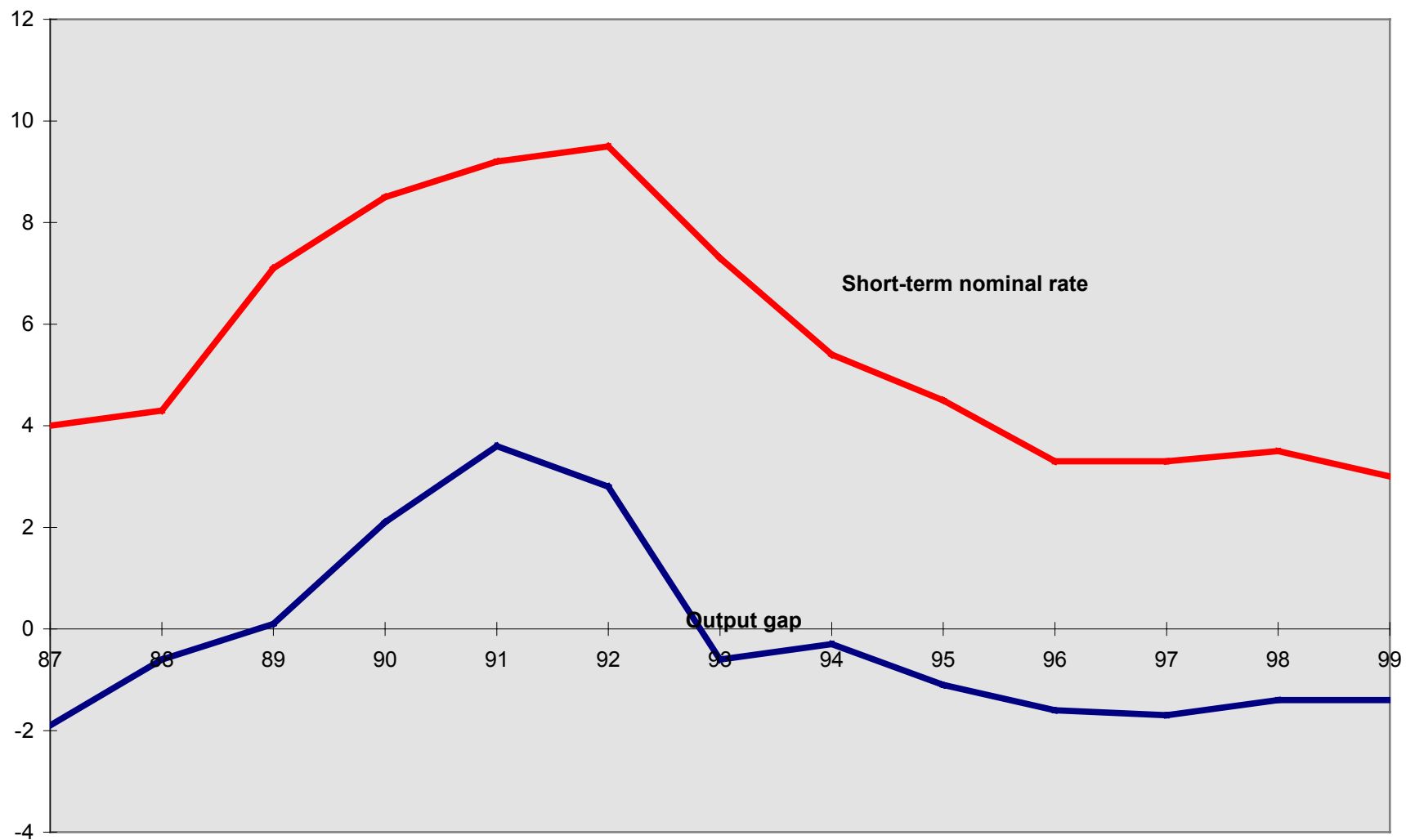


Chart 3: Supply shock
(long-term analysis)



**Chart 4: Short-term nominal rate and output gap
Germany**



**Chart 5: Short-term nominal rate and output gap
United States**

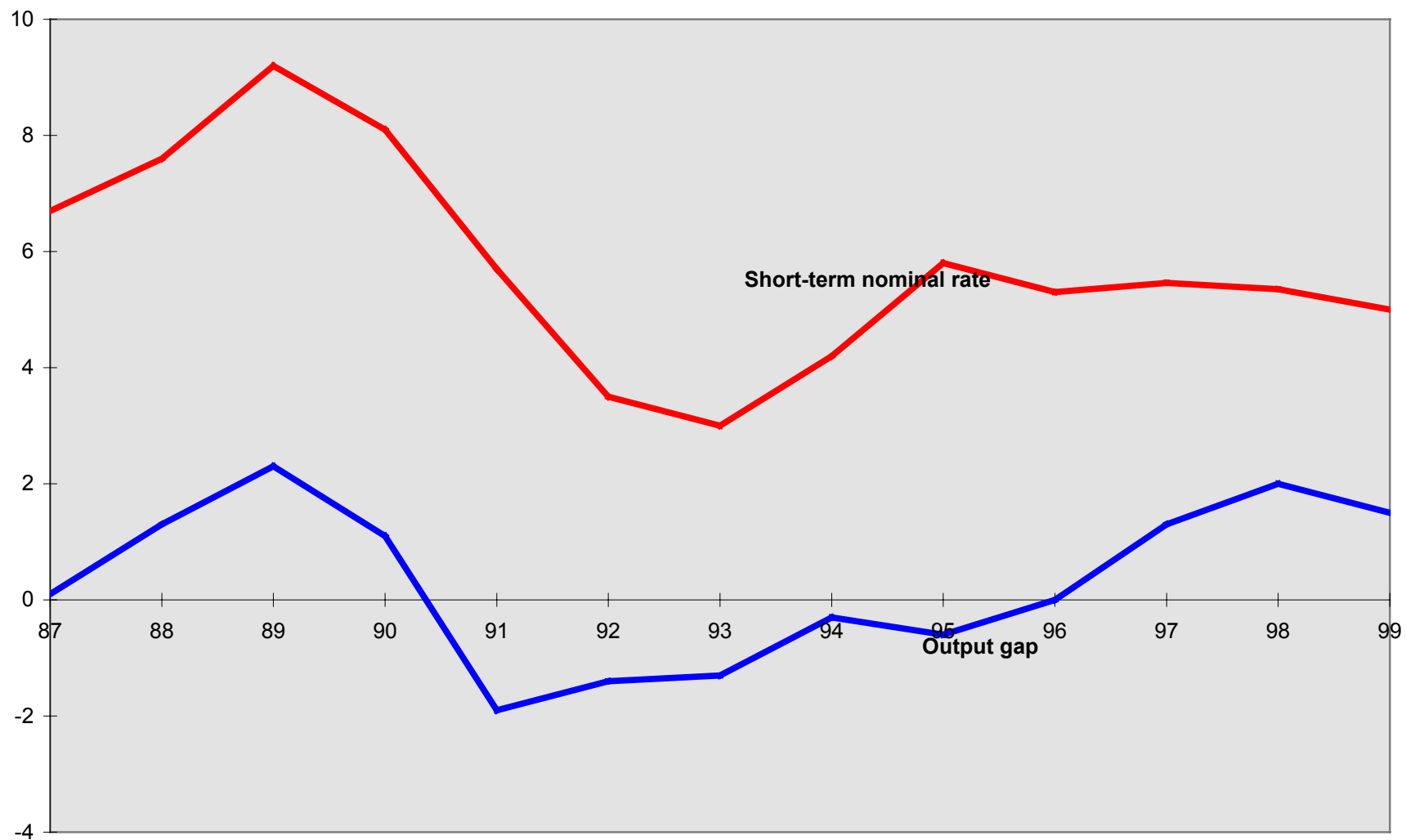


Chart 6: Taylor rule for United States

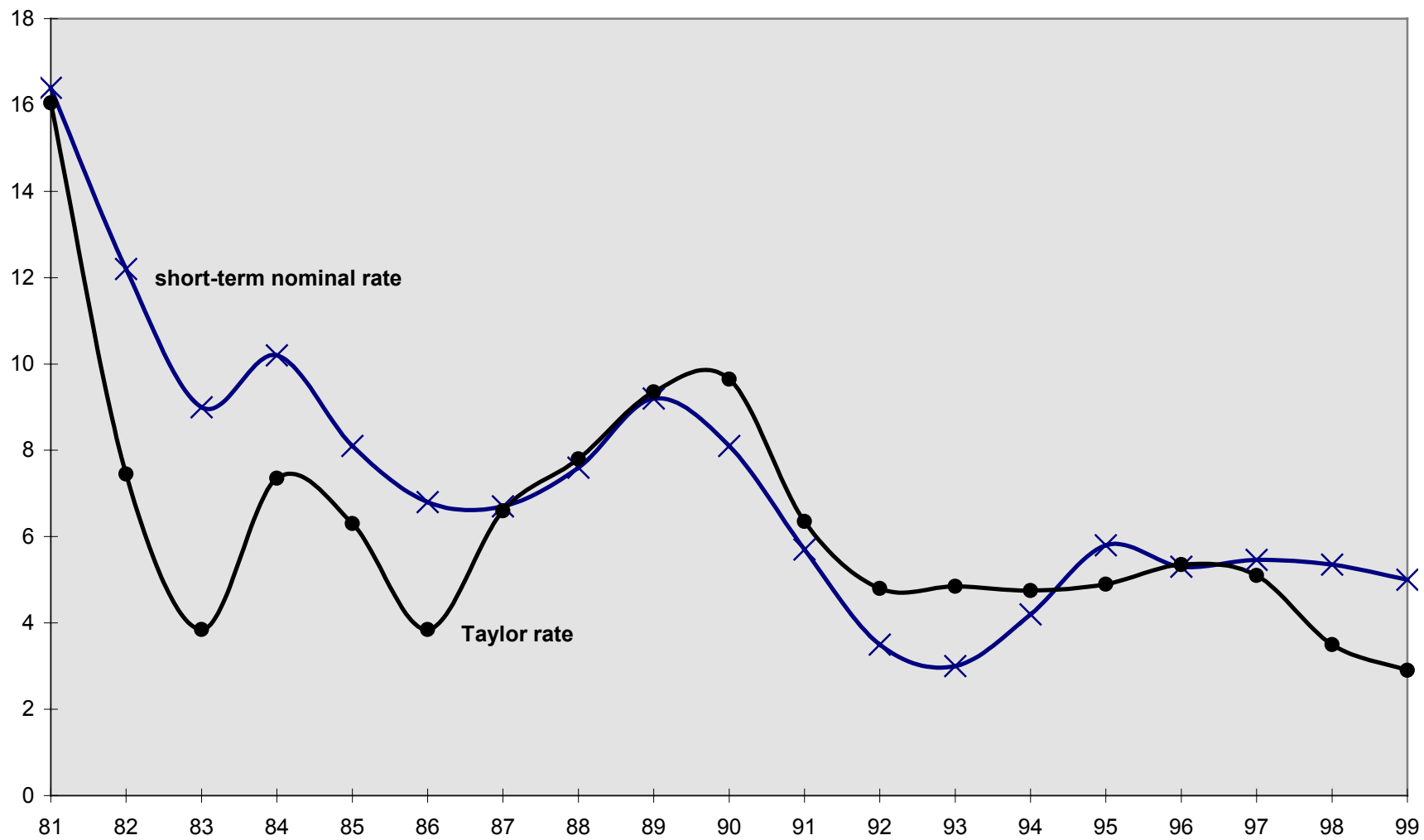


Chart 7: Taylor rule for Germany
(Target inflation rate: 2%, from 1997: 1.5 %; average real interest rate 2.5%)

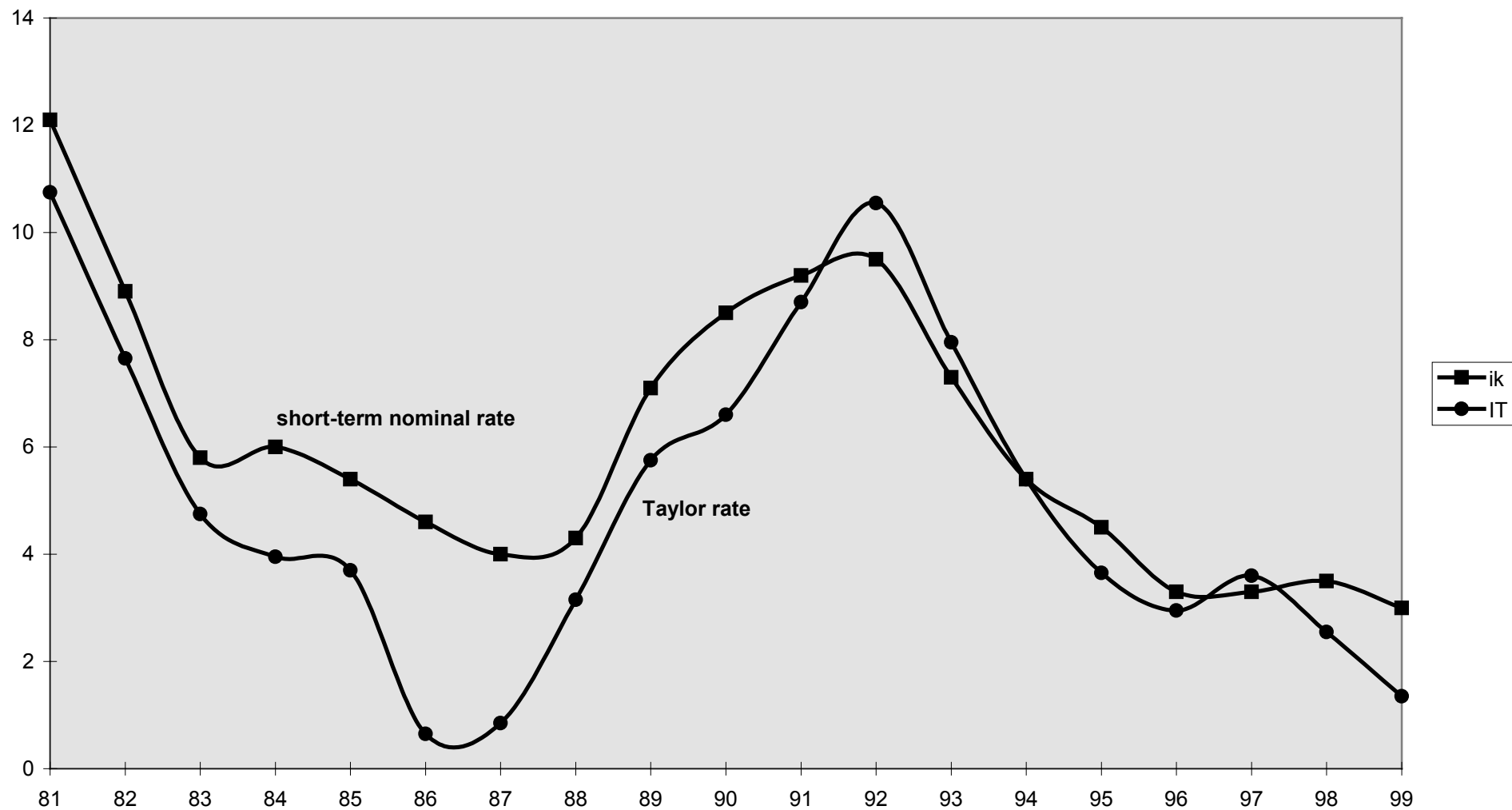


Chart 8: Demand shock and the interest rate
(IS/LM-Model)

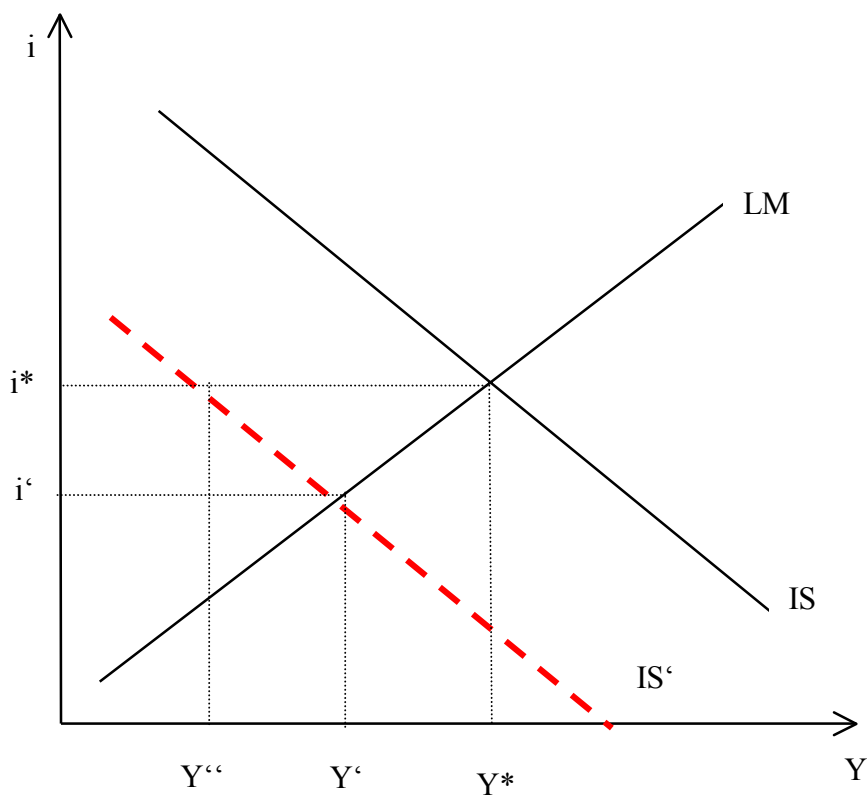
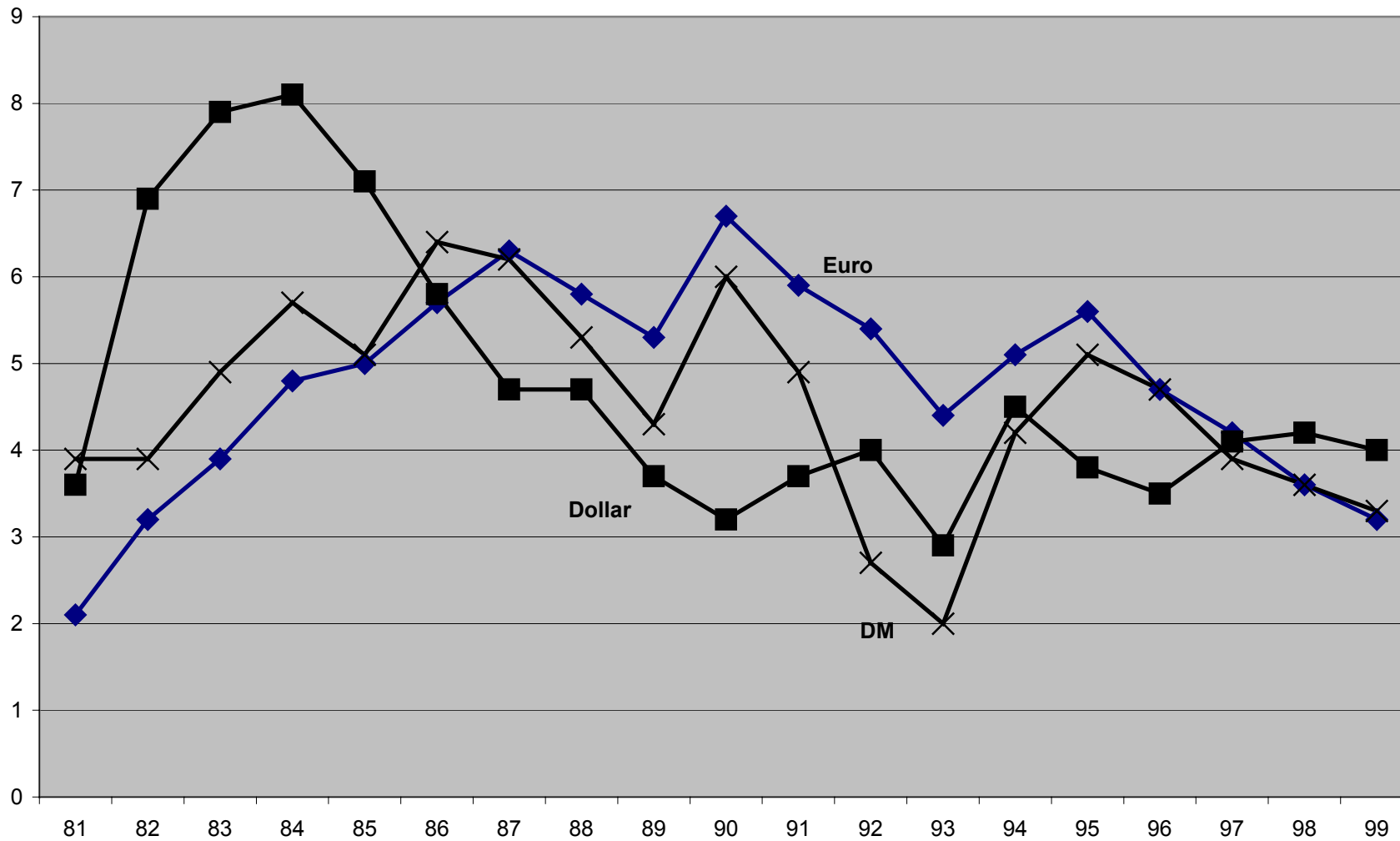


Chart 9: Real long-term interest rates



**Chart 10: Broad money and short-term interest rate
Euro area**

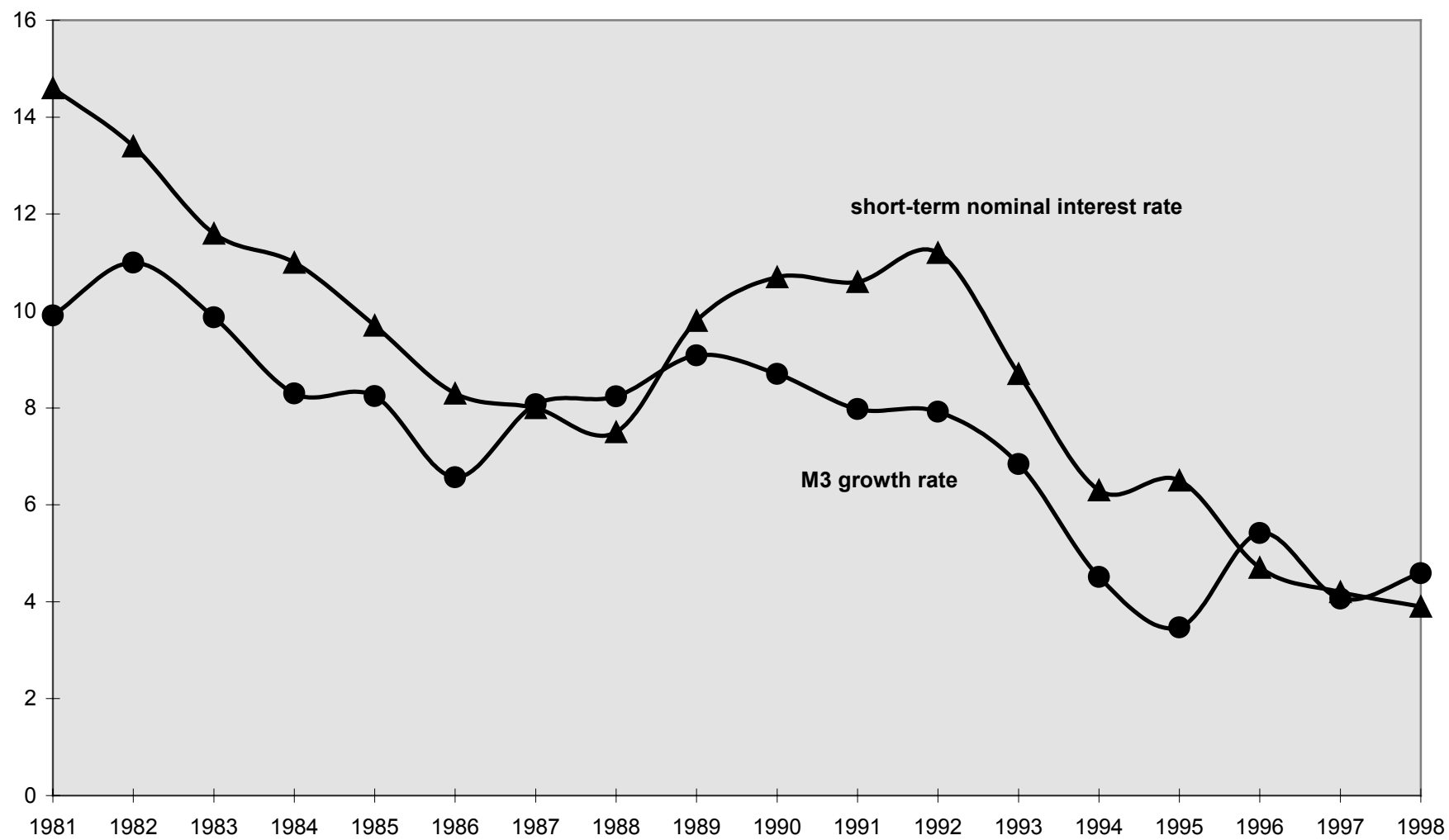


Chart 11: Bundesbank monetary target and actual M3

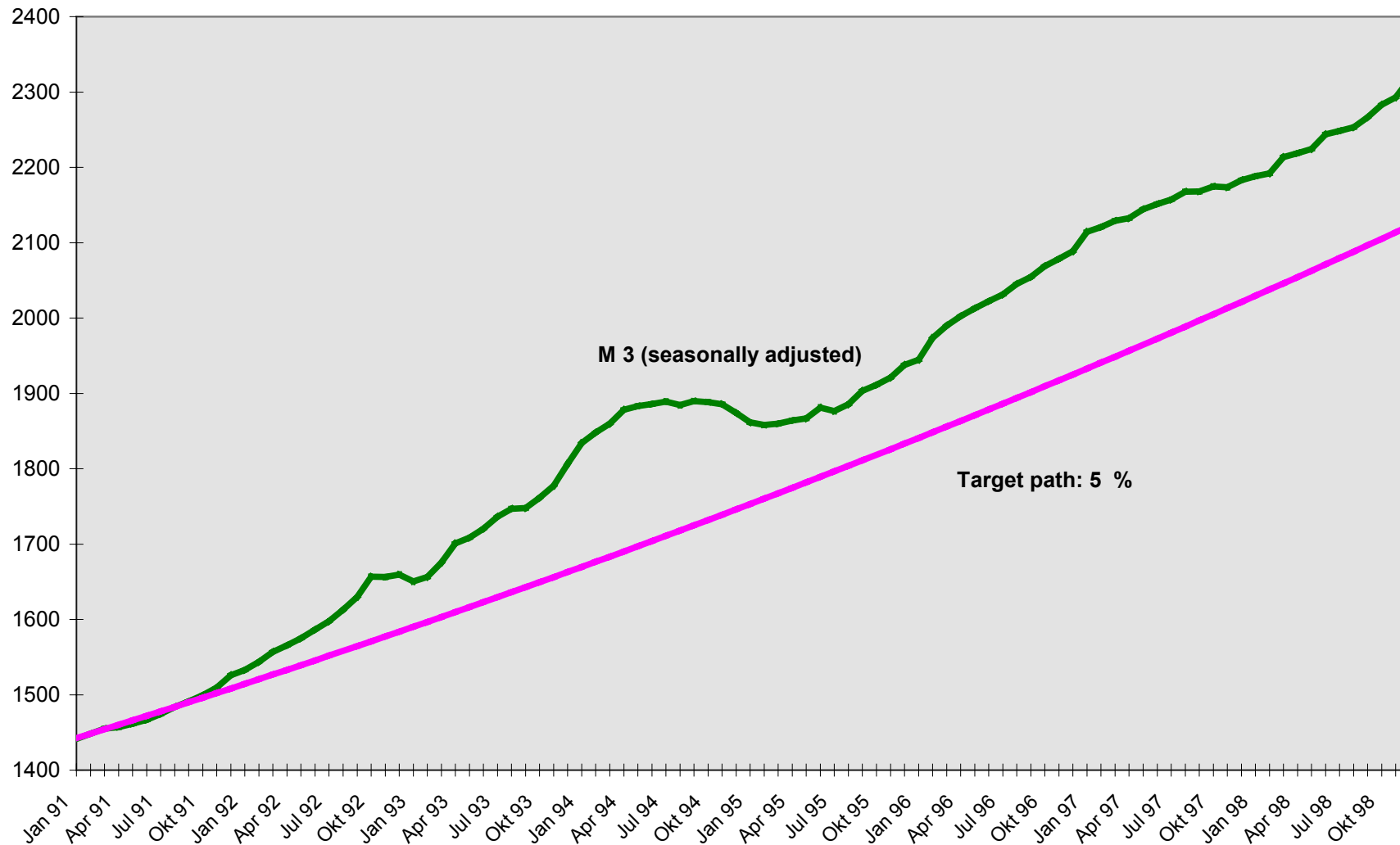
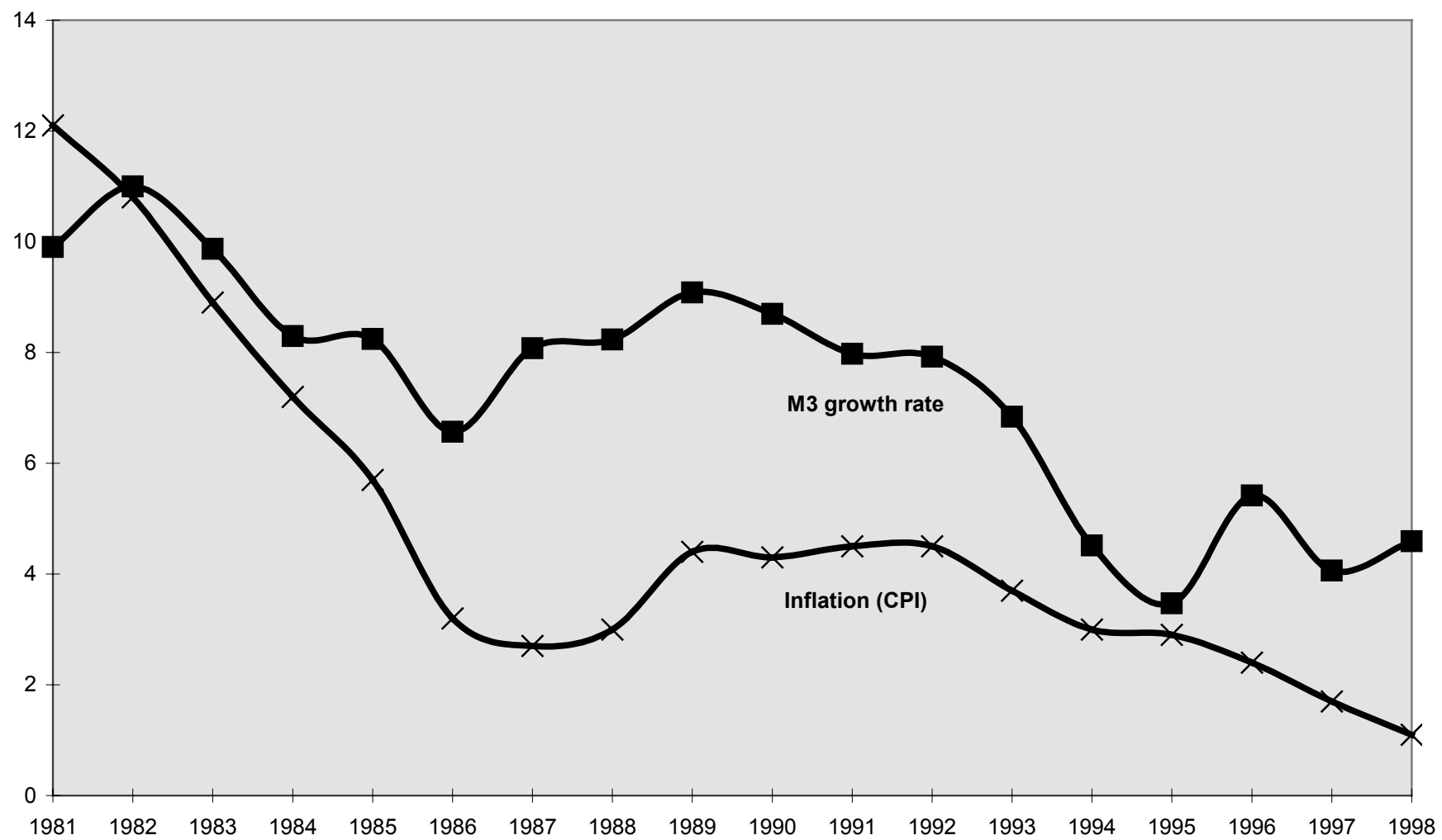
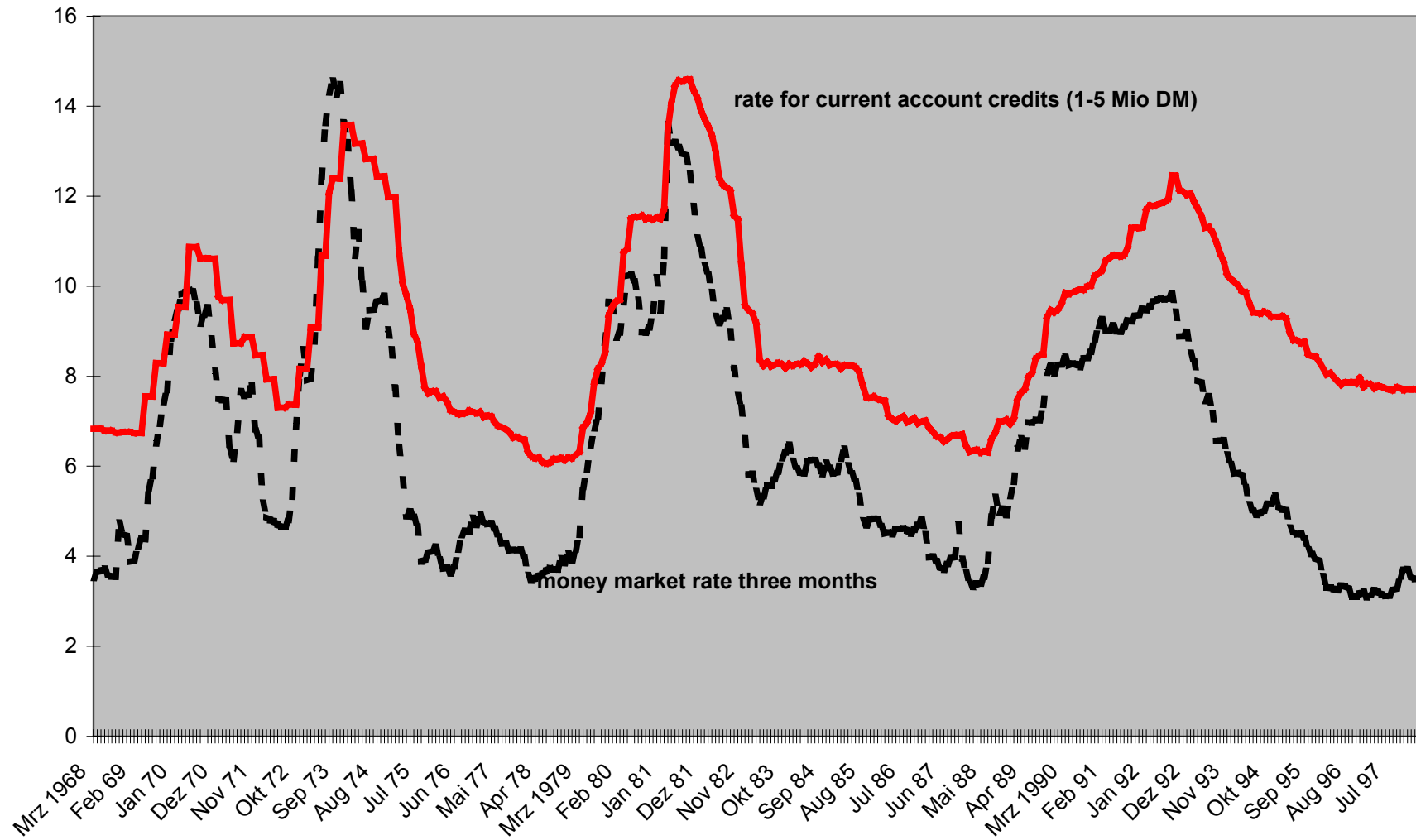


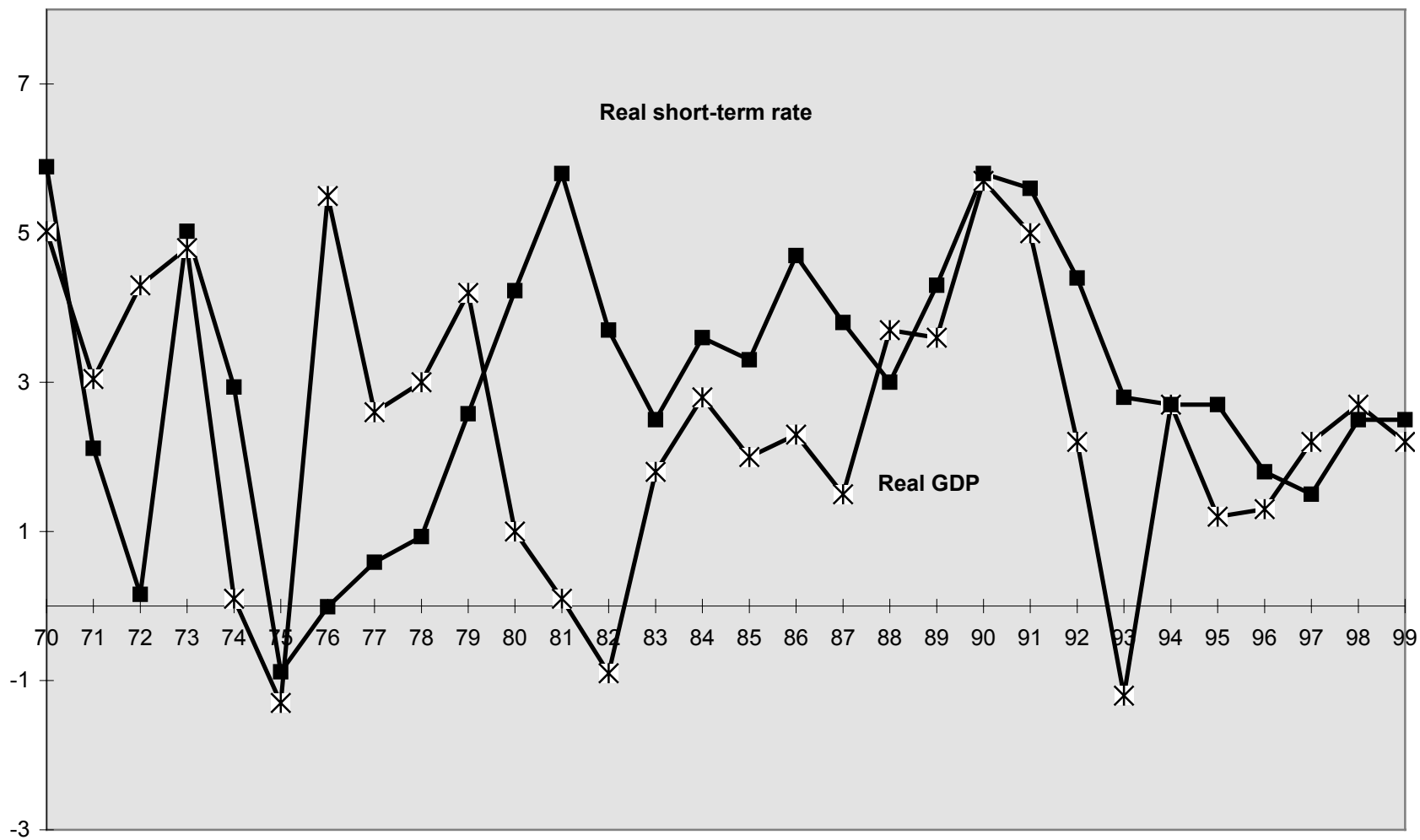
Chart 12: Broad money and inflation
Euro area



**Chart 13: Money market rates and commercial bank lending rates
Germany**



**Chart 14: Real short-term interest rate and real GDP
Germany**



**Chart 15: Real short-term rates and real GDP
United States**

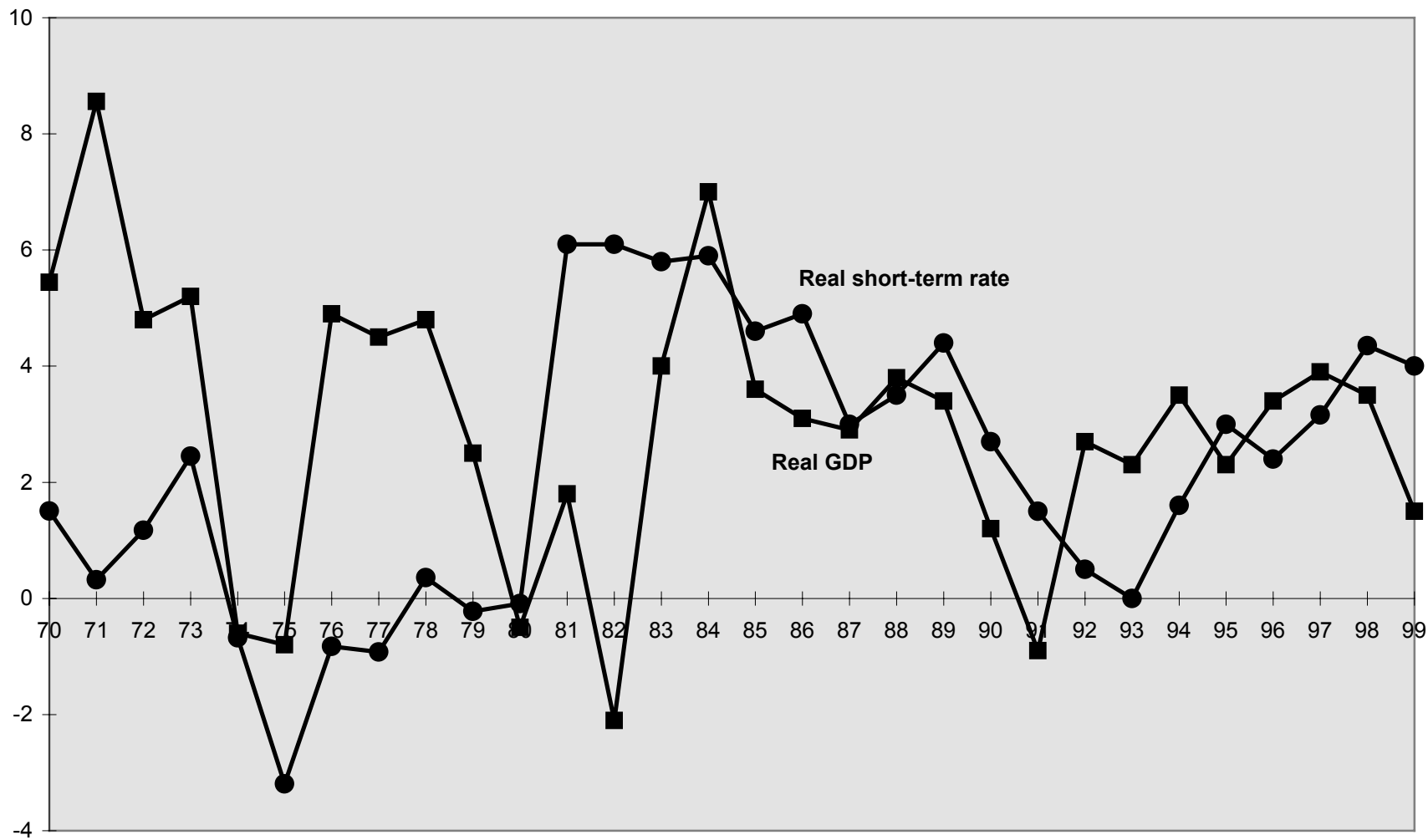


Chart 16: Real short-term interest rates

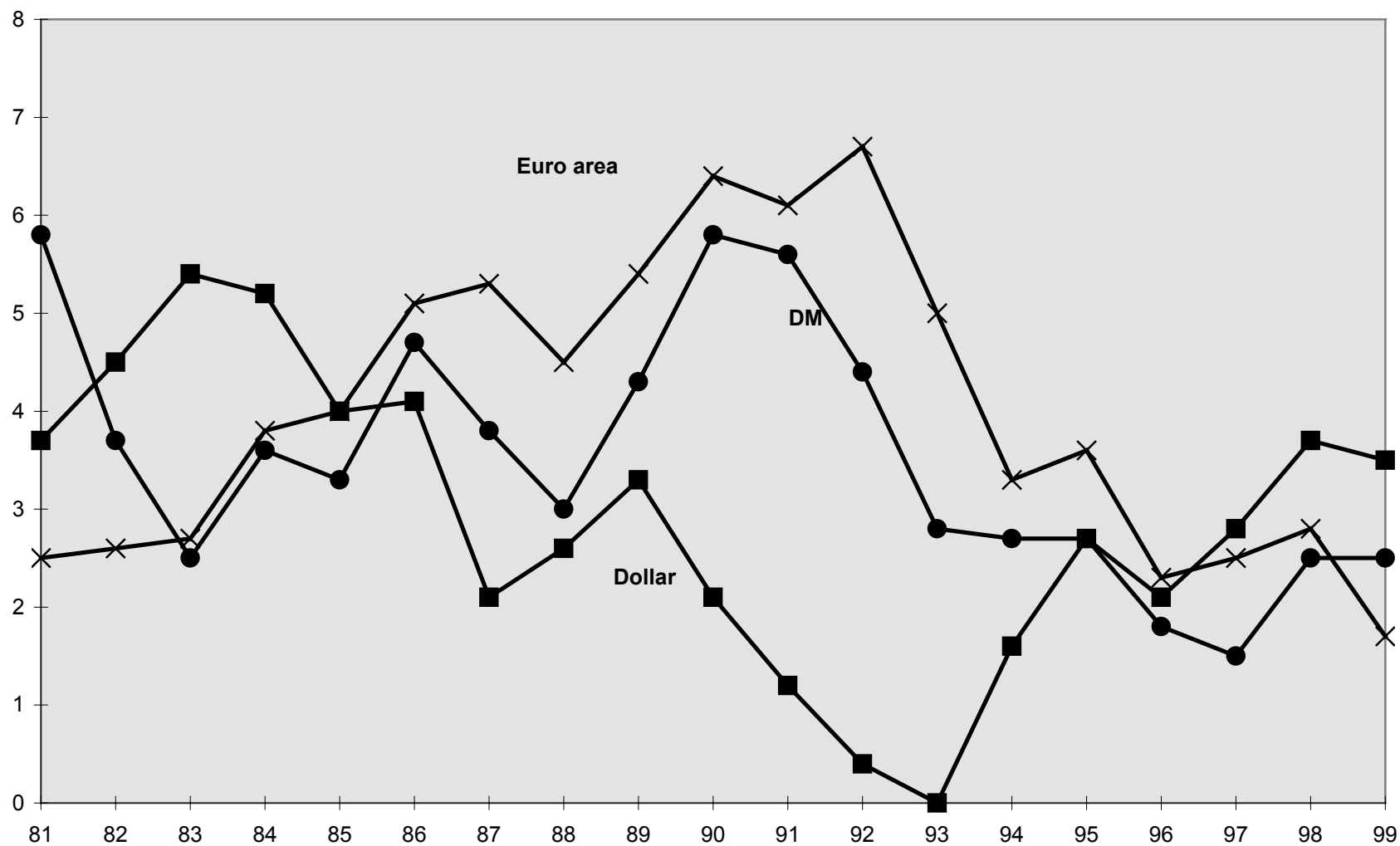
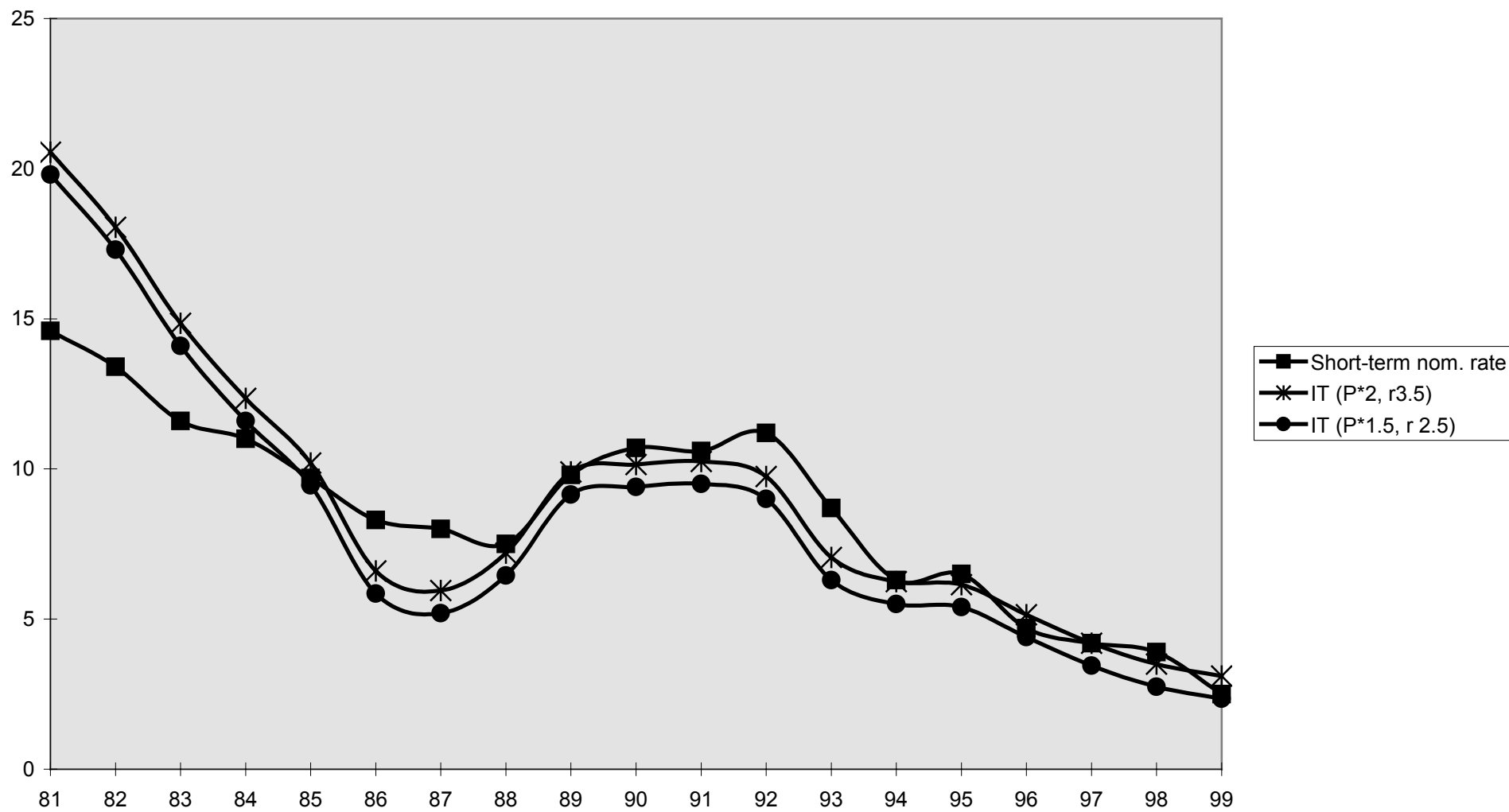
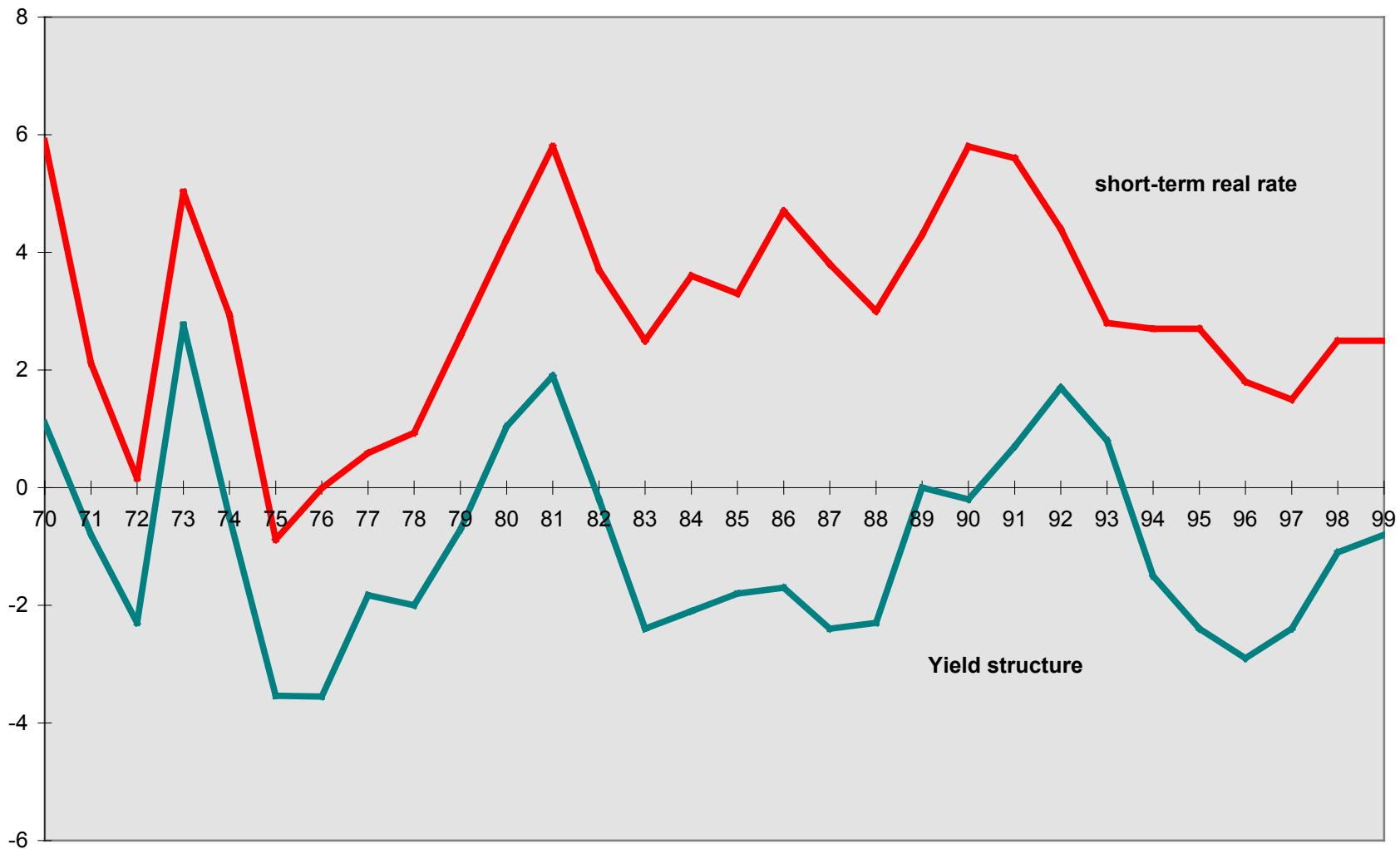


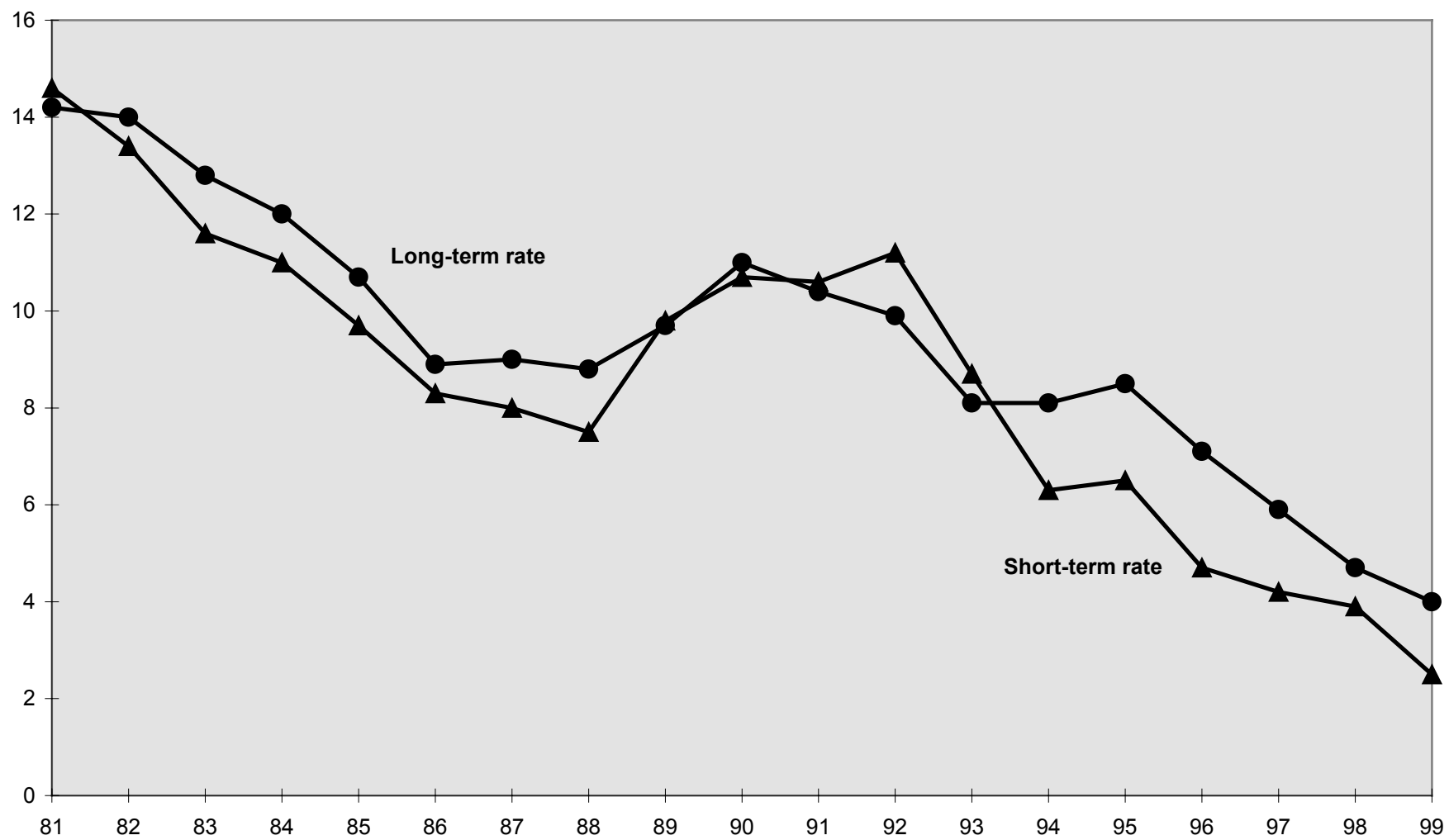
Chart 17: Taylor rule for the euro area



**Chart 18: Short-term real rate and yield structure
Germany**



**Chart 19: Long-term and short-term nominal rates
Euro area**



Data sources

Deutsche Bundesbank, Monatsberichte and CD-Rom

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(ECON-111, April 1999, En, summary/conclusions in all languages)

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(ECON-110, April 1999, En, summary/conclusions in all languages)

Forecasting budgetary deficits

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